

حمل الآن

مجانا وحصريا

امتحانات رقم (1)

الترم الثاني



1- A) Choose the correct answer:

- 1** The reaction of metal carbonate with diluted acid is thermally similar to
a) melting of ice b) evaporation of water
c) burning of wood d) sublimation of iodine
- 2** The molecular formula of slaked lime is
a) Ca(OH)_2 b) CaO c) Ba(OH)_2 d) CaCO_3

B) Give a reason for:

- 1 Rushing the bus passenger forward when the bus stops suddenly.
.....
- 2 Water is not used in extinguishing petroleum oil fires.
.....
- 3 Meiosis produces genetically different cells.
.....
- 4 The oxyacetylene flame is used in cutting and welding metals.
.....

2- A) Correct the underlined words:

- 1 If two forces 5 N and 5 N act on an object in opposite directions along the same line, then the net force acting on the object equals 10 N. (.....)
- 2 Normal atmospheric pressure equals **1013.25** mm.Hg. (.....)

B) What happens when ...?

- 1 An elastic collision occurs between a moving object and stationary object with the same mass.
.....
- 2 The dissolution of anhydrous copper sulphate salt in water. (In terms of thermal change).
.....

3 Adding calcium oxide to water. (Write the thermochemical reaction equation).

-
-

4 Fusion of the male nucleus of the pollen grain with the nucleus of the ovule.

-

3- A) Write the scientific term:

1 The amount of energy produced from the combustion of 1 g of fuel in excess of oxygen gas. (.....)

2 Energy is neither destroyed nor created, but it is transformed from one form to another. (.....)

B) Answer the following questions:

1 Cross out the odd word, then mention the relation between the rest:

Nutcracker – Lemon squeezer – Wheelbarrow – Tweezer.

-

2 What is the importance of corolla?

-
-

3 Explain the reason for the formation of high atmospheric pressure system.

-

4 Give an example of plant with a corymb inflorescence.

-

4- A) Put (✓) or (X):

1 As the bond energy increases, breaking this bond becomes more difficult. ()

2 The tropic of cancer is located at latitude 23.5°N , while the tropic of Capricorn is located at latitude 23.5°S . ()

B) Answer the following questions:

- ① Compare between Somatic cells and gametes. (In terms of definition and number of chromosome):

-
-
-
-

- ② Look at the opposite figures, then answer:
Which person moves with greater acceleration? And why?

-
-

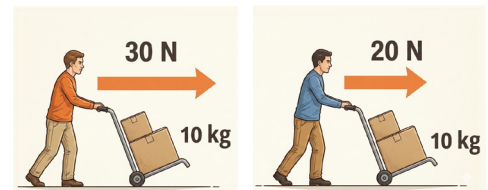


Figure 1

Figure 2

- ③ If the mechanical advantage of a lever equals 4. What is the effort required to lift a load of 100 N?

-
-

- ④ What is meant by the flower?

-

1- A) Correct the underlined words:

- ① When a crystalline (anhydrous) salt such as CuSO_4 is dissolved in water, its color turns into pink. (.....)
- ② Methane gas, which has a garlic smell, is added to alert users in case of the natural gas and butane gas leaks. (.....)

B) Answer the following questions:

First: Cross out the odd word, then mention the relation between the rest:

Carpel – Sepal – Tubers – Stamen

•

Second: What happens when ...?

- ① Drops of glycerin are added to potassium permanganate powder.
•
- ② Dipping two rods of copper and zinc lemons and connect them to LED bulb.
•
- ③ The net force acting on the same object decreases to half. (Regarding the acceleration).
•

2- A) Write the scientific term:

- ① The weight of a column of air with a cross-sectional area of 1 m^2 and a height extending to the top of the atmosphere. (.....)
- ② The total force in magnitude and direction resulting from the effect of a number of forces acting on an object. (.....)

B) Answer the following questions:

First: Write the thermochemical equation expressing the thermite reaction. And mention its importance.

•

Second: Give a reason for:

- 1 Vegetative reproduction is a form of a sexual reproduction.
•
- 2 Force is a vector physical quantity, while mass is a scalar physical quantity.
•
- 3 Instant hot compresses are used to relieve pain associated with muscle strain.
•
•

3- A) Complete the following sentences:

- 1 In exothermic reactions, the final temperature is the initial temperature.
- 2 is a main element in the combustion process.

B) Answer the following questions:

First: Look at the opposite figure, then answer:

- 1 Mention the sex of the opposite flower and its symbol.
•
- 2 What is the type of pollination which occurs in it?
•



Second: Calculate:

- 1 The amount of water vapor required to saturate a certain region, given that one cubic meter of air in this region contains 10 g of water vapor, and the relative humidity equals 50%.
•
•
•

- 2 A wheelbarrow is used to carry sand its weight is 300 N, if the distance from the wheel (fulcrum) to the center of gravity of the sand is 0.3 m and the distance from the wheel to the handle is 0.9 m. Calculate the effort to carry the sand.

•

4- A) Choose the correct answer:

- 1 Wind deflects in the Southern Hemisphere to of its original path in a/an direction.
- a) the left, clockwise b) the right, clockwise
c) the right, anticlockwise d) the left, anticlockwise
- 2 Ethanol prepared from cornstarch is fuel, while hydrogen is a fuel.
- a) artificially, biologically b) fossil, naturally
c) biologically, artificially d) solid, liquid

B) Answer the following questions:

First: What is the importance of ...?

- 1 Stevenson screen
•
- 2 Lavender flower
•
- 3 Cruise control
•

Second: Give an example of a first class lever found in humans.

•

1- A) Choose the correct answer:

1 In the reaction: $\text{H}_2 + \text{CuO} \longrightarrow \text{Cu} + \text{H}_2\text{O}$

Which substance is considered the reducing agent.

- a) Copper oxide
- b) Hydrogen gas
- c) Copper
- d) Water vapor

2 The thermal change resulting from the melting of a certain amount of solute in a known volume of solvent to form a solution is called

- a) heat of dissolution
- b) enthalpy of the material
- c) activation energy
- d) specific heat

B) Answer the following questions:

First: What happens when ...?

1 Passing a stream of air over red-hot copper powder.

-
-

2 Pulling the tablecloth quickly from under a dish.

-

3 The zygote divides mitotically several times.

-

Second: What is meant by ignition point?

-

2- A) Put (✓) or (X):

1 The high-pressure region forms descending air currents rotating outward from the center of the high-pressure. ()

2 In second class levers, the effort arm equals the load arm, so they always save effort. ()

B) Answer the following questions:

- 1 Compare between: Endothermic process and exothermic process. (In terms of definition – example).
-
-
-
- 2 Which takes longer time to stop when brakes are applied: A truck or a car moving at the same velocity? Explain your answer.
-
- 3 If the number of chromosomes in a human cardiac muscle cell is 23 pairs of chromosomes. What is the number of chromosomes in the following cells ...?
- a) Ovum (.....)
- b) Liver cell (.....)
- 4 If the energy absorbed during breaking of bonds of the reactants is 1200 kJ and the energy released during the formation of the product bonds is 1730 kJ. Calculate the difference between absorbed and released energies.
- Is the reaction exothermic or endothermic?
-

3- A) Correct the underline words:

- 1 Fire extinguishers may be used to extinguish some metal fires such as sodium and magnesium fires. (.....)
- 2 According to thermal energy, the dissolution of laundry powder in water is an endothermic reaction. (.....)

B) Give a reason for:

- 1 The deflection of the wind path at the two poles.
•
- 2 Meiosis is called reductional division.
•
- 3 Pliers is a first class lever.
•
- 4 Wind-pollinated flowers produce a large number of light and smooth pollen grains.
•

4- A) Complete the following sentences:

- 1 The combustion of a methane gas in air leads to the formation of and through reaction.
- 2 Wind speed when the difference between atmospheric pressure is large.

B) Answer the following questions:

- 1 Give one example of flower with fused sepals and petals. (.....)
- 2 Look at the opposite figure, then answer:

a) What is the magnitude of the net force acting on the box?



b) Will the box remain stationary or will it move? Explain your answer.

- 3 Mention the difference between palm flower and tomato flower.

1- A) Put (✓) or (X):

- ① Breaking bonds between atoms of the reactant molecules is endothermic process. ()
- ② Steel wool burns in atmospheric air faster than in pure oxygen. ()

B) Answer the following questions:

First: What is meant by ...?

- ① Spontaneous combustion
•
- ② Fertilization
•
- ③ Acceleration
•

**Second: If the initiate temperature $T_1 = 21^\circ\text{C}$ and the final temperature $T_2 = 16^\circ\text{C}$
Calculate the change in temperature ΔT and determine the type of dissolution.**

-
-

2- A) Correct the underlined words:

- ① The sky is clear and sunny in areas of high humidity. (.....)
- ② Drone allows the user to fly in the air upwards as the water rushes down through its openings. (.....)

B) Give a reason for:

- ① The flask sticks to the piece of wood when adding ammonium chloride powder to barium hydroxide powder.
•
- ② Using third class levers although they don't save effort.
•
- ③ The peach fruit contains one seed, while the pea fruit contains many seeds.
•
- ④ You feel that your hands are cold when you rub your hands with an antiseptic hand gel.
•

3- A) Choose the correct answer:

- 1** In the energy diagram of endothermic reaction, the energy level of the products is the energy level of the reactants.
- a) higher than b) lower than
c) equal to d) parallel to
- 2** The fuel that consists of a mixture of propane and butane gases after being separated from natural gas is
- a) coal b) methane gas c) butagas d) benzene

B) Answer the following questions:

First: What is the importance of ...?

- 1** Wedge
- 2** Calyx

Second: Compare between:

- 1 Androecium and Gynoecium. (In terms of arrangement – Function).
- 2 Sea breeze and land breeze.

4- A) Complete the following sentences:

- 1 The letter refers to the atmospheric pressure region and is colored with blue.
- 2 Spark plugs produce used to ignite the mixture of and in the combustion chamber of the car engine.

B) Answer the following questions:

First: What happens when ...?

- ① A collision occurs between two moving objects having the same mass and the same velocity in opposite directions.

•
•

- ② Expansion of air with altitude above sea level. (In terms of atmospheric pressure and temperature).

•

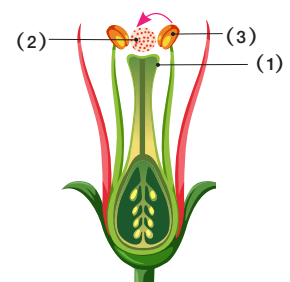
Second: Look at the opposite figure, then answer:

- a) What is the name of this process?

•

- b) Write what the numbers indicate.

•



1- A) Choose the correct answer:

- 1 In instant cold compresses, the solute is
 a) MgSO_4 b) NaHCO_3 c) NaOH d) NH_4NO_3
- 2 The substance "....." is used in a self-heating can.
 a) ammonium chloride b) calcium oxide
 c) sodium carbonate d) calcium hydroxide

B) Answer the following questions:

- 1 Classify the solubility process of the (K_2SO_4) and the solubility process of (CaCl_2) as exothermic or endothermic.
 •
- 2 What is meant by Newton's second law?
 •
 •
- 3 Determine the type of pollination in the case:
 The androecium and gynoecium mature at the same time.
 •
- 4 Compare between oxidation and reduction. (In terms of definition).
 •
 •
 •

2- A) Put (✓) or (X):

- 1 The backward movement of the cannon when the shell is propelled forward represents an application of Newton's first law. ()
- 2 During the daytime, the temperature of the land is higher than the temperature of the adjacent sea, because of the higher specific heat of water. ()

B) First: What happens when ...?

- 1 The fertilization process is completed. (In terms of ovary and ovule).
•
- 2 Decreased amount of oxygen during the combustion of a benzene flame.
•

Second: Give a reason for:

- 1 In inelastic collision, there is a loss in the kinetic energy.
•
- 2 When diluting concentrated sulphuric acid, the acid is added to the water not the opposite.
•

3- A) Complete the following questions:

- 1 The condensation of freon in the refrigeration cycle of the refrigerator is an process.
- 2 A substance whose ignition point is 60°C ignites a substance whose ignition point is 200°C .

B) Answer the following questions:

First: Calculate:

- 1 The daily temperature range and the daily average temperature in a certain city, knowing that the maximum temperature is 36°C and the minimum is 14°C .
•
•
- 2 A body of mass 10 kg is acted on by two forces 40 N and 15 N toward the north. Calculate the net force and the acceleration, then determine the direction of each.
•
•

Second: Answer the following questions

- ① The similarity of the number of chromosomes in the somatic cells of different living organisms doesn't mean genetic similarity. **Explain.**

•

- ② Give an example of naked flower. (.....)

4- A) Write the scientific term:

- ① It is a flammable material used to produce thermal energy as a result of the occurrence of an exothermic reaction. (.....)
- ② They are curved lines connecting points of equal atmospheric pressure at sea level. (.....)

B) Answer the following questions:

- ① Classify the following levers into levers that save effort or levers that don't save effort: (Coal tongs – Scissor – Crowbar – Nutcracker).

•

•

- ② What is the number of cells resulting from the division of muscle cell through 4 successive mitotic divisions.

•

- ③ Look at the opposite figures, then answer:

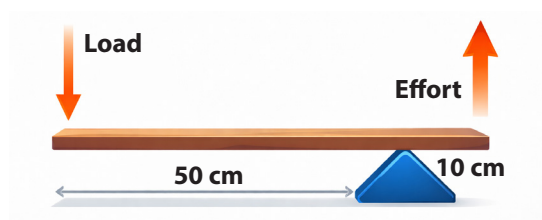


Figure (1)

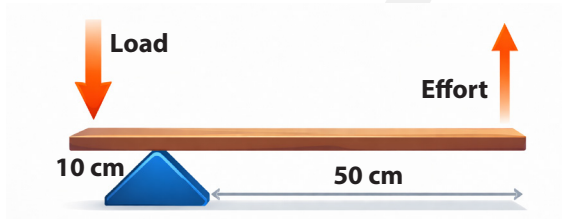


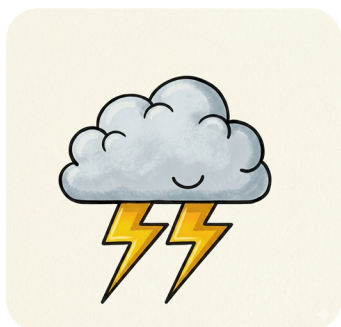
Figure (2)

- Which figure represents the lever that with the greater mechanical advantage? Find its value.

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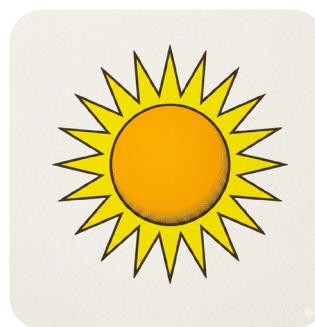
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4 Write what the meaning of the following icons is.



(A)

.....



(B)

.....

1- A) Choose the correct answer:

- 1** The reaction of metal carbonate with diluted acid is thermally similar to
a) melting of ice b) evaporation of water
c) burning of wood d) sublimation of iodine
- 2** The molecular formula of slaked lime is
a) Ca(OH)_2 b) CaO c) Ba(OH)_2 d) CaCO_3

B) Give a reason for:

- 1** Rushing the bus passenger forward when the bus stops suddenly.

 - Because the inertia of the passenger causes him to resist the sudden change in their state of motion when pressing the brake to keep the state of motion it was in.
- 2** Water is not used in extinguishing petroleum oil fires.

 - Because petroleum oil floats on the surface of water due to its lower density, which leads to the spread of fires instead of extinguishing them.
- 3** Meiosis produces genetically different cells.

 - Due to the occurrence of the crossing-over phenomenon between the homologous chromosomes during meiosis (I).
- 4** The oxyacetylene flame is used in cutting and welding metals.

 - Because the oxyacetylene flame reaches a temperature of 3000°C which is sufficient for that.

2- A) Correct the underlined words:

- 1 If two forces 5 N and 5 N act on an object in opposite directions along the same line, then the net force acting on the object equals **10 N**. (zero)
- 2 Normal atmospheric pressure equals **1013.25** mm.Hg. (760)

B) What happens when ...?

- 1 An elastic collision occurs between a moving object and stationary object with the same mass.
 - The moving object will stop and the stationary object will move with the same velocity as the moving object before the collision.
- 2 The dissolution of anhydrous copper sulphate salt in water. (In terms of thermal change).
 - The temperature of surroundings increases.

③ Adding calcium oxide to water. (Write the thermochemical reaction equation).

- An exothermic chemical reaction occurs, forming calcium hydroxide and releasing heat.



④ Fusion of the male nucleus of the pollen grain with the nucleus of the ovule.

- A zygote is formed.

3- A) Write the scientific term:

- ① The amount of energy produced from the combustion of 1 g of fuel in excess of oxygen gas. (Calorific value of fuel)
- ② Energy is neither destroyed nor created, but it is transformed from one form to another. (Law of conservation of energy)

B) Answer the following questions:

- ① Cross out the odd word, then mention the relation between the rest:
Nutcracker – Lemon squeezer – Wheelbarrow – Tweezer.
• Tweezer/ all are second class levers.
- ② What is the importance of corolla?
• 1- Production of the reproductive organs of the flower.
• 2- Attracting insects that play important role in completing the floral reproduction.
- ③ Explain the reason for the formation of high atmospheric pressure system.
• Due to decreasing in both temperature and humidity.
- ④ Give an example of plant with a corymb inflorescence.
• Cherry plant.

4- A) Put (✓) or (X):

- ① As the bond energy increases, breaking this bond becomes more difficult. (✓)
- ② The tropic of cancer is located at latitude 23.5°N, while the tropic of Capricorn is located at latitude 23.5°S. (✓)

B) Answer the following questions:

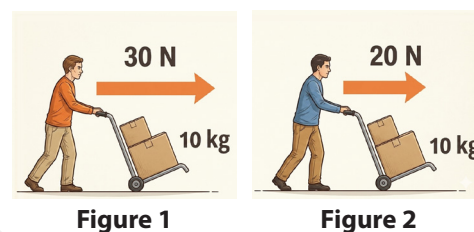
- 1 Compare between Somatic cells and gametes. (In terms of definition and number of chromosome):

Points of comparison	Somatic cells	Reproductive cells
Definition	They include all cells of the living organism, except the reproductive cells.	They are specialized cells responsible for sexual reproduction in living organisms.
Number of chromosomes	Contain the complete number of chromosomes in the form of homologous pairs. (2n)	Contain the half number of chromosomes of the somatic cells. (n)

- 2 Look at the opposite figures, then answer:

Which person moves with greater acceleration? And why?

- The person in figure (1), because the acceleration is directly proportional to the net force.



- 3 If the mechanical advantage of a lever equals 4. What is the effort required to lift a load of 100 N?

- $\text{Mechanical advantage} = \frac{\text{Load}}{\text{Effort}} = 4 = \frac{100}{\text{Effort}}$
 $\text{Effort} = \frac{100}{4} = 25 \text{ N}.$

- 4 What is meant by the flower?

- It is the organ of sexual reproduction in flowering plants and it is a short stem whose leaves are modified to perform the reproductive function.

1- A) Correct the underlined words:

- ① When a crystalline (anhydrous) salt such as CuSO_4 is dissolved in water, its color turns into pink. (blue)
- ② Methane gas, which has a garlic smell, is added to alert users in case of the natural gas and butane gas leaks. (Ethanethiol)

B) Answer the following questions:

First: Cross out the odd word, then mention the relation between the rest:

Carpel – Sepal – Tubers – Stamen

- Tubers / floral whorls.

Second: What happens when ...?

- ① Drops of glycerin are added to potassium permanganate powder.
 - A spontaneous exothermic reaction occurs, leading to the emission of smoke with the formation of a purple-colored flame.
- ② Dipping two rods of copper and zinc lemons and connect them to LED bulb.
 - The bulb lights up.
- ③ The net force acting on the same object decreases to half. (Regarding the acceleration).
 - The acceleration decreases to half.

2- A) Write the scientific term:

- ① The weight of a column of air with a cross-sectional area of 1 m^2 and a height extending to the top of the atmosphere. (Atmospheric pressure)
- ② The total force in magnitude and direction resulting from the effect of a number of forces acting on an object. (Net force)

B) Answer the following questions:

First: Write the thermochemical equation expressing the thermite reaction. And mention its importance.



This reaction is used in welding the railway tracks.

Second: Give a reason for:

- 1 Vegetative reproduction is a form of asexual reproduction.
 - Because it occurs through a single parent which produces a new plant completely identical to the parental individual.
- 2 Force is a vector physical quantity, while mass is a scalar physical quantity.
 - Because force is fully defined by both its magnitude and direction, while mass is fully defined by its magnitude only.
- 3 Instant hot compresses are used to relieve pain associated with muscle strain.
 - Because they work by expanding the blood vessels, which increases blood flow to the stressed areas, causing relaxing of the contracting muscles and relieving pain.

3- A) Complete the following sentences:

- 1 In exothermic reactions, the final temperature is **higher than** the initial temperature.
- 2 **Oxygen** is a main element in the combustion process.

B) Answer the following questions:

First: Look at the opposite figure, then answer:

- 1 Mention the sex of the opposite flower and its symbol.
 - Male flower, ♂
- 2 What is the type of pollination which occurs in it?
 - Cross-pollination.



Second: Calculate:

- 1 The amount of water vapor required to saturate a certain region, given that one cubic meter of air in this region contains 10 g of water vapor, and the relative humidity equals 50%.
 - Absolute humidity = 10 g/m³
$$\text{Relative humidity} = \frac{\text{Absolute humidity}}{\text{Maximum capacity}} \times 100$$
$$= \frac{10}{\text{Maximum capacity}} = 0.5$$
$$\text{Maximum capacity} = \frac{10}{0.5} = 20 \text{ g.}$$

- 2 A wheelbarrow is used to carry sand its weight is 300 N, if the distance from the wheel (fulcrum) to the center of gravity of the sand is 0.3 m and the distance from the wheel to the handle is 0.9 m. Calculate the effort to carry the sand.

• $\text{Effort} = \frac{0.3 \times 300}{0.9} = 100 \text{ N}$

4- A) Choose the correct answer:

- 1 Wind deflects in the Southern Hemisphere to of its original path in a/an direction.
- a) the left, clockwise b) the right, clockwise
c) the right, anticlockwise d) **the left, anticlockwise**
- 2 Ethanol prepared from cornstarch is fuel, while hydrogen is a fuel.
- a) artificially, biologically b) fossil, naturally
c) **biologically, artificially** d) solid, liquid

B) Answer the following questions:

First: What is the importance of ...?

- 1 Stevenson screen
- **Measuring temperature, atmospheric pressure, and humidity in the place where it is placed.**
- 2 Lavender flower
- **It is used to relieve muscle pain and headache.**
- 3 Cruise control
- **It keeps the velocity of the car constant on highways without any direct driver intervention, through using sensors.**

Second: Give an example of a first class lever found in humans.

- **The head.**

1- A) Choose the correct answer:

1 In the reaction: $\text{H}_2 + \text{CuO} \longrightarrow \text{Cu} + \text{H}_2\text{O}$

Which substance is considered the reducing agent.

- a) Copper oxide
- b) **Hydrogen gas**
- c) Copper
- d) Water vapor

2 The thermal change resulting from the melting of a certain amount of solute in a known volume of solvent to form a solution is called

- a) **heat of dissolution**
- b) enthalpy of the material
- c) activation energy
- d) specific heat

B) Answer the following questions:

First: What happens when ...?

1 Passing a stream of air over red-hot copper powder.

- **Copper combines with oxygen of atmospheric air forming black copper oxide compound.**



2 Pulling the tablecloth quickly from under a dish.

- **The dish remains in its place**

3 The zygote divides mitotically several times.

- **It forms the embryo.**

Second: What is meant by ignition point?

- **It is the temperature at which the metal begins to ignite.**

2- A) Put (✓) or (X):

1 The high-pressure region forms descending air currents rotating outward from the center of the high-pressure. (✓)

2 In second class levers, the effort arm equals the load arm, so they always save effort. (X)

B) Answer the following questions:

- ① Compare between: Endothermic process and exothermic process. (In terms of definition – example).

Points of comparison	Exothermic process	Endothermic process
Definition	It is a physical change accompanied by the release of thermal energy to the surroundings when a substance dissolves in water.	It is a physical change accompanied by the absorption of thermal energy from the surroundings when a substance dissolves in water.
Example	Sodium hydroxide	Potassium sulphate

- ② Which takes longer time to stop when brakes are applied: A truck or a car moving at the same velocity? Explain your answer.
- The truck, because its mass is greater. The larger the mass of an object, the greater its inertia; therefore, it is harder to stop, so it takes a longer time to stop.
- ③ If the number of chromosomes in a human cardiac muscle cell is 23 pairs of chromosomes. What is the number of chromosomes in the following cells ...?
- a) Ovum (23 chromosomes)
- b) Liver cell (46 chromosomes).
- ④ If the energy absorbed during breaking of bonds of the reactants is 1200 kJ and the energy released during the formation of the product bonds is 1730 kJ. Calculate the difference between absorbed and released energies. Is the reaction exothermic or endothermic?
- The difference between absorbed and released energies = $1730 - 1200 = 530$ kJ
The reaction is an exothermic.

3- A) Correct the underline words:

- ① Fire extinguishers may be used to extinguish some metal fires such as sodium and magnesium fires. (Sand)
- ② According to thermal energy, the dissolution of laundry powder in water is an endothermic reaction. (exothermic)

B) Give a reason for:

- 1 The deflection of the wind path at the two poles.
 - Because the Coriolis Effect increases at the two poles.
- 2 Meiosis is called reductional division.
 - Because in meiosis, a single cell divides into four daughter cells, each containing half the number of chromosomes (n).
- 3 Pliers is a first class lever.
 - Because the fulcrum is located between the effort and the load.
- 4 Wind-pollinated flowers produce a large number of light and smooth pollen grains.
 - To be easily carried by wind and to compensate for those lost in the air.

4- A) Complete the following sentences:

- 1 The combustion of a methane gas in air leads to the formation of carbon dioxide gas and water vapor through exothermic reaction.
- 2 Wind speed increases when the difference between atmospheric pressure is large.

B) Answer the following questions:

- 1 Give one example of flower with fused sepals and petals. (Petunia)
- 2 Look at the opposite figure, then answer:

a) What is the magnitude of the net force acting on the box?



- The net force = $30 - 20 = 10 \text{ N}$

b) Will the box remain stationary or will it move? Explain your answer.

- The box will move to the right, because the forces acting on the box are unbalanced forces.

- 3 Mention the difference between palm flower and tomato flower.
 - The palm flower is unisexual flower and has 3 floral whorls, while the tomato flower is bisexual flower and has 4 floral whorls.

1- A) Put (✓) or (X):

- ① Breaking bonds between atoms of the reactant molecules is endothermic process. (✓)
- ② Steel wool burns in atmospheric air faster than in pure oxygen. (X)

B) Answer the following questions:

First: What is meant by ...?

- ① Spontaneous combustion
 - It is the ignition of metals without the presence of an external source of heat.
- ② Fertilization
 - Fusion of the nucleus of a male gamete (n) with the nucleus of a female gamete (n) to form a zygote (2n).
- ③ Acceleration
 - The change in the velocity of the object per unit time.

Second: If the initial temperature $T_1 = 21^\circ\text{C}$ and the final temperature $T_2 = 16^\circ\text{C}$

Calculate the change in temperature ΔT and determine the type of dissolution.

• $\Delta T = T_2 - T_1 = 16 - 21 = -5^\circ\text{C}$

This dissolution is an endothermic reaction.

2- A) Correct the underlined words:

- ① The sky is clear and sunny in areas of high humidity. (High-pressure)
- ② Drone allows the user to fly in the air upwards as the water rushes down through its openings. (Flyboard)

B) Give a reason for:

- ① The flask sticks to the piece of wood when adding ammonium chloride powder to barium hydroxide powder.
 - Because the decrease of the temperature of the surroundings which leads to the freezing of the water layer between the flask and the piece of wood.
- ② Using third class levers although they don't save effort.
 - Because it is used for precise and dangerous tasks.
- ③ The peach fruit contains one seed, while the pea fruit contains many seeds.
 - Because the ovary in the flower of the peach plant contains one ovule, while in the flower of the pea plant contains several ovules.
- ④ You feel that your hands are cold when you rub your hands with an antiseptic hand gel.
 - Due to the absorption of heat from the hands when the alcohol present in the hand gel evaporates.

3- A) Choose the correct answer:

- 1** In the energy diagram of endothermic reaction, the energy level of the products is the energy level of the reactants.
- a) higher than b) lower than
c) equal to d) parallel to
- 2** The fuel that consists of a mixture of propane and butane gases after being separated from natural gas is
- a) coal b) methane gas c) butagas d) benzene

B) Answer the following questions:

First: What is the importance of ...?

- 1 **Wedge**
 - It is used in changing the direction of the applied force.
- 2 **Calyx**
 - It protects the inner parts of the flower, especially before blooming.

Second: Compare between:

- ### 1 Androecium and Gynoecium. (In terms of arrangement – Function).

Points of comparison	Androecium	Gynoecium
Arrangement	The third floral whorl that lies just inside the corolla.	The fourth floral whorl.
Function	Production of pollen grains.	Production of ovules.

- 2** Sea breeze and land breeze.

Sea breeze	Land breeze
The movement of cool, refreshing air from the sea towards the land during the daytime.	The movement of cool, relatively dry air from the land towards the sea at night.

4- A) Complete the following sentences:

- 1 The letter **H** refers to the **high** atmospheric pressure region and is colored with blue.
- 2 Spark plugs produce **a spark** used to ignite the mixture of **gasoline** and **air** in the combustion chamber of the car engine.

B) Answer the following questions:

First: What happens when ...?

- 1 A collision occurs between two moving objects having the same mass and the same velocity in opposite directions.
 - Both will move in the opposite direction and at the same velocity, as they acquire acceleration in the same direction as the force acting on each of them.
- 2 Expansion of air with altitude above sea level. (In terms of atmospheric pressure and temperature).
 - The air density decreases; therefore, the atmospheric pressure decreases.

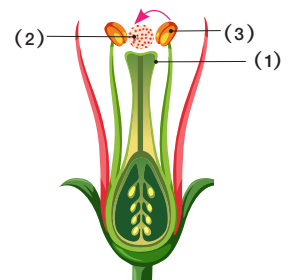
Second: Look at the opposite figure, then answer:

a) What is the name of this process?

- Self-pollination

b) Write what the numbers indicate.

- 1- Stigma
- 2- pollen grains
- 3- Anther



1- A) Choose the correct answer:

- 1 In instant cold compresses, the solute is
 a) MgSO_4 b) NaHCO_3 c) NaOH d) NH_4NO_3
- 2 The substance "....." is used in a self-heating can.
 a) ammonium chloride b) **calcium oxide**
 c) sodium carbonate d) calcium hydroxide

B) Answer the following questions:

- 1 Classify the solubility process of the (K_2SO_4) and the solubility process of (CaCl_2) as exothermic or endothermic.
 • The solubility of (K_2SO_4) is an endothermic reaction. While the solubility of (CaCl_2) is an exothermic reaction.
- 2 What is meant by Newton's second law?
 • If a net force acts on an object of mass, it causes the object to have an acceleration in the same direction as the net force.
- 3 Determine the type of pollination in the case:
 The androecium and gynoecium mature at the same time.
 • Self-pollination.
- 4 Compare between oxidation and reduction. (In terms of definition).

Points of comparison	Oxidation	Reduction
Definition	A chemical process in which the percentage of oxygen increases in the substance or the percentage of hydrogen decreases in it.	A chemical process in which the percentage of oxygen decreases in the substance or the percentage of hydrogen increases in it.

2- A) Put (✓) or (X):

- 1 The backward movement of the cannon when the shell is propelled forward represents an application of Newton's first law. (X)
- 2 During the daytime, the temperature of the land is higher than the temperature of the adjacent sea, because of the higher specific heat of water. (✓)

B) First: What happens when ...?

- ① The fertilization process is completed. (In terms of ovary and ovule).
 - The ovary enlarges and develops into a fruit and the ovule inside the ovary turns into seed.
- ② Decreased amount of oxygen during the combustion of a benzene flame.
 - The color of the flame turns yellow.

Second: Give a reason for:

- ① In inelastic collision, there is a loss in the kinetic energy.
 - Because it is converted into heat, sound, or because of the deformation in the shape of the object.
- ② When diluting concentrated sulphuric acid, the acid is added to the water not the opposite.
 - Because this allows water to absorb the released heat by adding concentrated acid to it without causing damage.

3- A) Complete the following questions:

- ① The condensation of freon in the refrigeration cycle of the refrigerator is an **exothermic** process.
- ② A substance whose ignition point is 60°C ignites **faster than** a substance whose ignition point is 200°C .

B) Answer the following questions:

First: Calculate:

- ① The daily temperature range and the daily average temperature in a certain city, knowing that the maximum temperature is 36°C and the minimum is 14°C .
 - The daily temperature range = $36 - 14 = 22^{\circ}\text{C}$
 - The daily average temperature = $\frac{14 + 36}{2} = 25^{\circ}\text{C}$.
- ② A body of mass 10 kg is acted on by two forces 40 N and 15 N toward the north. Calculate the net force and the acceleration, then determine the direction of each.
 - $F = 40 + 15 = 55 \text{ N}$ toward the north
 - $a = \frac{F}{m} = \frac{55}{10} = 5.5 \text{ m/s}^2$ toward the north

Second: Answer the following questions

- 1 The similarity of the number of chromosomes in the somatic cells of different living organisms doesn't mean genetic similarity. **Explain.**
 - Because they carry different genetic information.
- 2 Give an example of naked flower. (Willow flower)

4- A) Write the scientific term:

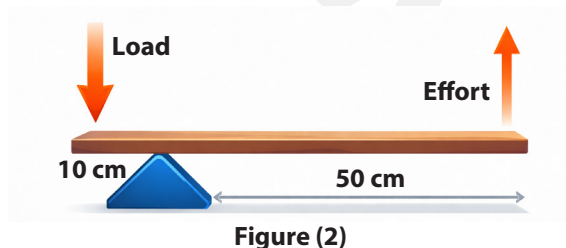
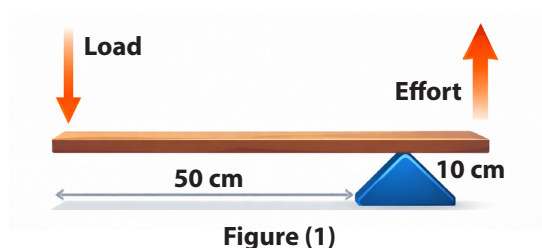
- 1 It is a flammable material used to produce thermal energy as a result of the occurrence of an exothermic reaction. (Fuel)
- 2 They are curved lines connecting points of equal atmospheric pressure at sea level. (Isobars)

B) Answer the following questions:

- 1 Classify the following levers into levers that save effort or levers that don't save effort: (Coal tongs – Scissor – Crowbar – Nutcracker).

Levers that save effort	Levers that don't save effort
Crowbar – Nutcracker	Scissor – Coal tongs

- 2 What is the number of cells resulting from the division of muscle cell through 4 successive mitotic divisions.
 - Number of daughter cells = $N = 2^n = 2^4 = 16$ cells.
- 3 Look at the opposite figures, then answer:

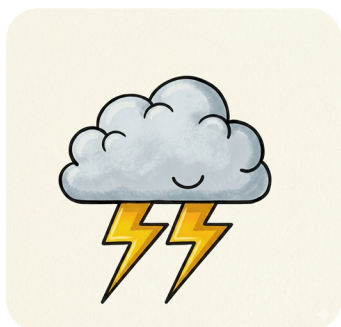


- Which figure represents the lever that with the greater mechanical advantage? Find its value.

- Figure (2)

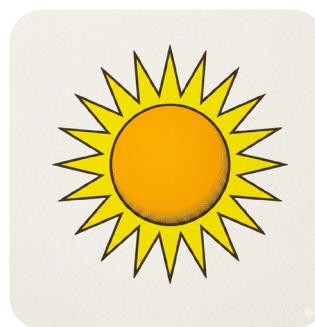
$$\text{Mechanical advantage} = \frac{\text{Effort arm}}{\text{Load arm}} = \frac{50}{10} = 5.$$

4 Write what the meaning of the following icons is.



(A)

represents thunder and lightning



(B)

represents sunny weather condition

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

امتحانات رقم (2)

الترم الثاني



1 [A] Choose the correct answer:

- (1) All the following are exothermic processes, except process.
 (a) freezing (b) sublimation (c) condensation (d) precipitation
- (2) Ice tong
 (a) has a mechanical advantage equal to 1
 (b) is from third class lever.
 (c) has a mechanical advantage greater than 1
 (d) is from second class lever.

(B) What is meant by each of the following:

- (1) Net force. (2) Law of conservation of energy.
(3) Sexual reproduction. (4) Atmospheric pressure.

2 [A] Put (✓) in front of the correct statement and (X) in front of the incorrect statement, with correction:

- (1) The calorific value of hydrogen fuel is the highest compared to other types of fuel. ()
- (2) Second class levers are used in precise and dangerous tasks. ()

[B] What happens when:

- (1) Heating hydrated copper sulphate salt (**According to the colour change**).
- (2) The effect on a body moving at a constant velocity, with a net force equal to zero.
- (3) Division of a somatic cell by mitosis.
- (4) Altitude above sea level (**According to temperature**).

3 [A] Complete the following sentences:

- (1) The molecular formula of quicklime is , while the molecular formula of slaked lime is
- (2) The male gametes in animals are and in plants are

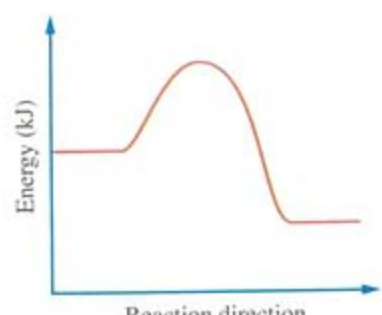
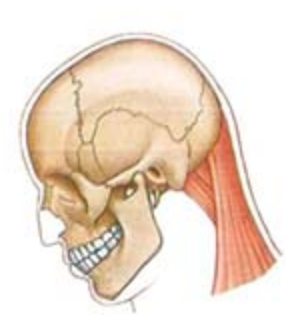
[B] Answer the following questions:

- (1) **How** can we benefit from understanding oxidation and reduction reactions in food preservation?
- (2) **Calculate the acceleration** at which a car moves with a mass of 1000 kg, if its engine force is 1300 N (assuming neglect of other acting forces).
- (3) **Mention one example** of a naked flower.
- (4) **Mention one use** for the claw hammer.

4 [A] Write the scientific term of each of the following statements:

- (1) The refrigerator coolant liquid.
- (2) The overall instantaneous condition of the atmosphere at a certain place and time.

[B] Answer the question shown below each of the following shapes:

(1)  What type of chemical reaction does this diagram represent? Explain.	(2)  Identify the type of this lever, with explanation.
(3)  What is the sex of this flower? Explain.	(4)  What is the name of this technique? And what devices are placed inside it?

Model 2

1 [A] Correct the underlined words:

- (1) The rushing of bus passengers forward when it stops suddenly is an application of Newton's third law.
- (2) The crossing-over phenomenon occurs during mitotic division.

[B] Answer the following questions:

- (1) The opposite figure expresses the safe dilution process of concentrated acid with water.
Does (X) represent the acid or the water? Explain.
- (2) First class lever in equilibrium state, so if the applied effort at one end is 100 N, and the length of the effort arm is 40 cm, and the load arm is 160 cm,
Calculate the value of the load.
- (3) **What is the reason** for the high temperature near the Equator?
- (4) **Write the balanced symbolic equation** representing the thermite reaction.



1 [A] Write the scientific term of each of the following statements:

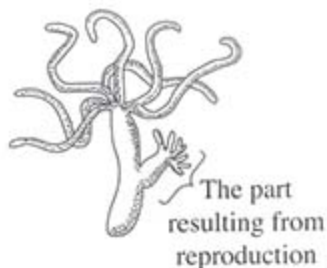
- (1) A salt whose colour changes from blue to pink when drops of water are added to it.
- (2) The time taken for a moving object to stop.

[B] (1) The opposite diagram shows the reproduction of one of the living organisms resulting from a single parent:

- 1- **What** is the type of reproduction occurring?
- 2- **Does** this reproduction occur by meiosis **or** mitosis?

(2) What is the name of the technology application used in:

- 1- Maintaining constant velocity of cars on highways.
- 2- Heating canned foods without an external heat source.

**2 [A] Choose the correct answer:**

- (1) Which of the following levers has a mechanical advantage greater than 1?
(a) Tong. (b) Wheelbarrow. (c) Seesaw. (d) Tennis racket.
- (2) The following substances release thermal energy when dissolved in water, **except**
(a) sodium hydroxide. (b) calcium chloride.
(c) sodium carbonate. (d) sodium bicarbonate.

[B] Answer the following questions:

- (1) **Mention one example, within what you have studied, for each of the following:**
1- A compound machine.
2- A plant with a simple corymb inflorescence.
- (2) **Mention one use of each of the following:**
1- Instant hot compresses. 2- Weather buoys.

3 [A] Correct the underlined words:

- (1) Honey bees emit light from the abdominal area.
- (2) Atmospheric pressure decreases slightly as the temperature increases.

[B] (1) Egypt is affected by Khamaseen winds in the spring season every year:

- 1- **What** is meant by wind?
- 2- **What** are the characteristics of Khamaseen winds?

(2) Answer the following questions:

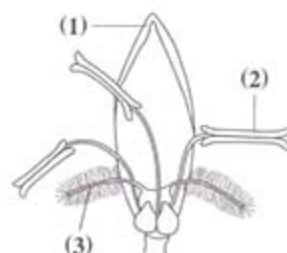
- 1- **What** is the structure of the male reproductive organ in the flower?
- 2- **Explain the relationship between** the atmospheric pressure regions **and** the type of air currents formed in them.

4 [A] Complete the following sentences:

- (1) When standing on tiptoes, the foot represents a class lever and the load is represented by
- (2) The Bunsen flame turns in complete combustion, while it turns in incomplete combustion.

[B] (1) The opposite figure is of a wind-pollinated flower:

- 1- **Which** of the labeled parts does not play a role in the wind-pollination method?
- 2- **Why** is this flower cross-pollinated by wind?



(2) Answer the following questions:

- 1- **Mention** one example of biofuel, **and State** how it is used.
- 2- **State** the importance of the wheel and axil.

Model 4

1 [A] Choose from column (B) what suits it in column (A), and rewrite the sentences completely:

(A)	(B)
(1) Barbecue tongs	(1) is a first class lever.
(2) Nutcracker	(2) is a second class lever.
	(3) is a third class lever.

[B] (1) The two opposite figures show a device placed at the mountain base once and at its summit another time [not in order]:

- 1- **What** is the name of this device?
And what is it used for?
- 2- **Identify** the symbol of the figure that represents the state of the device at the mountain summit, **with explanation**.



(2) What happens when:

- 1- Doubling the amount of dissolved substance while keeping the volume of the solvent constant (**According to temperature**).
- 2- A somatic cell undergoes 3 successive mitotic divisions (**According to the number of resulting cells**).

2 [A] Correct the underlined words:

- (1) Force is measured by a sensitive balance.
- (2) Hibiscus flowers are used to calm the nervous system.

[B] What is the role (importance) of each of the following:

- (1) The bacterial decomposition in spontaneous combustion of straw and wood.
- (2) The calyx in flowers.
- (3) Weather forecasts in helping farmers.
- (4) The air current in the game of air hockey.

3 [A] Complete the following sentences:

- (1) is a vector physical quantity, while is a scalar physical quantity.
- (2) The scientist proved the law of conservation of energy, while the scientist formulated the laws of motion.

[B] What is the difference between each of the following:

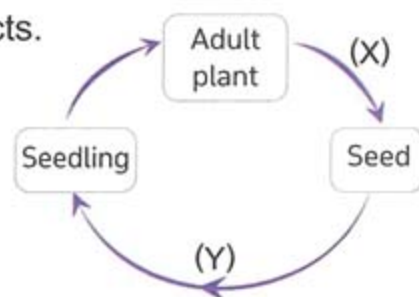
- (1) Peach and pea (In terms of: Nature of the flower ovary).
- (2) Elastic collision and inelastic collision (In terms of: Energy).
- (3) Natural gas and ethanethiol gas (In terms of: Smell).
- (4) The direction of wind movement in the Northern Hemisphere and the Southern Hemisphere.

4 [A] Choose the correct answer:

- (1) The direction of force can be changed using
(a) levers and the inclined plane. (b) the pulley and the wedge.
(c) the wheel and axil. (d) gears and belts.
- (2) Gas (A) is flammable, gas (B) assists burning and gas (C) neither burns nor assists burning. Which of the following is correct?
(a) (A): H_2 , (B): CO_2 (b) (A): O_2 , (C): H_2
(c) (A): O_2 , (B): CO_2 (d) (B): O_2 , (C): CO_2

[B] Answer the following questions:

- (1) **State** Aristotle's belief regarding the motion of objects.
- (2) **What are the two processes** (X), (Y) shown in the opposite diagram that represent the life cycle of a flowering plant?
- (3) **What is the reason for** the occurrence of the sea breeze and land breeze phenomena?
- (4) **Draw the energy diagram** for the following endothermic reaction:



1 [A] Write the scientific term of each of the following statements:

- (1) Flammable materials used in the production of thermal energy.
- (2) The climatic zone located between the tropic of Cancer and the tropic of Capricorn.

[B] (1) Define each of the following:

1- Newton's first law.

2- Reproduction.

(2) Give reasons for the following:

1- Painting the wood of weather station shelter in white colour.

2- The decomposition of ozone gas in the atmosphere is an endothermic reaction.

2 [A] Choose the correct answer:

- (1) All the following are levers whose fulcrum is located between the effort and the load, except for

(a) crowbar.

(b) scissors.

(c) tweezers.

(d) seesaw.

- (2) The opposite table shows the initial temperatures T_1 of water and the final temperatures T_2 after dissolving different substances in the same volume of water. In which process the greatest amount of thermal energy is absorbed?

The process	T_1	T_2
(1)	19°C	29°C
(2)	20°C	16°C
(3)	22°C	17°C
(4)	22°C	26°C

(a) (1).

(b) (2).

(c) (3).

(d) (4).

[B] Answer the following questions:

- (1) From the following two diagrams:

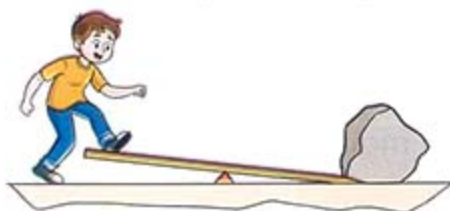


Figure (1)

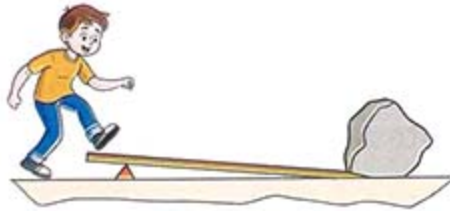


Figure (2)

Which one represents the best way to move the stone? Explain.

- (2) One cubic meter of air in a certain area becomes saturated (at 20°C) with a quantity of water vapour whose mass is 20 g

Calculate the relative humidity in this area (at 20°C) if one cubic meter of its air contains 10 g of water vapour.

- (3) What is the purpose of using spark plugs in cars?

- (4) What are the symptoms of hay fever? And what is the method of prevention?

3 [A] Correct the underlined words:

- (1) Petroleum oil is an example of synthetic fuel.
- (2) Lemon squeezer is a third class lever.

[B] (1) When:

- 1- The forces acting on a body are described as balanced forces.
- 2- The abdomen of the luminous insect lights up.

(2) Answer the following questions:

- 1- **Why** are the calyx and corolla in the daffodil flower called perianth?
- 2- **What** is the effect of temperature on the distribution of the Egyptian lynx and the polar bear in different regions of the Earth?

4 [A] Complete the following sentences:

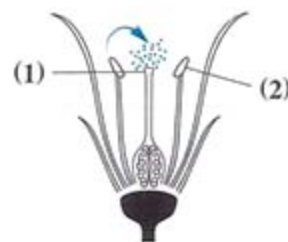
- (1) Acceleration is measured in the unit and it is equivalent to
- (2) When hydrogen gas is passed over hot copper oxide, its colour changes from to

[B] (1) Explain:

- 1- What represents the fulcrum and the effort in the biceps muscle as a lever.
- 2- The reason for using third class levers despite not saving effort.

(2) The opposite figure represents one of the types of pollination that occur in flowering plants:

- 1- What is the type of pollination?
- 2- Write the labels of the figure.



Model 6

1 [A] Correct the underlined words:

- (1) The scientist Newton proved the inaccuracy of Aristotle's belief regarding the relationship between force and motion.
- (2) Intestinal cells and cardiac muscle cells are examples of reproductive cells.

[B] (1) Ammonia burns completely in the presence of an abundance of oxygen gas, according to the following equation:



- 1- Explain the substances that undergo oxidation and those that undergo reduction.
- 2- What is the reducing agent in this reaction?

(2) Explain:

- 1- All first class levers change the direction of motion.
- 2- The weather is clear and sunny in region of high atmospheric pressure.

2 [A] Complete the following equations:



[B] (1) Explain with mathematical calculations:

1- Which of these two regions has higher atmospheric pressure:

- City (X) its atmospheric pressure equals 1035 mb
- City (Y) its atmospheric pressure equals 768 mm.Hg

2- The sum of the number of floral whorls in both tomato and pumpkin flowers together.

(2) What is the difference between:

1- The molecular formula of anhydrous copper sulphate **and** hydrated copper sulphate.

2- The scissors **and** nutcracker «In terms of: Type of lever».

3 [A] Cross out the odd statement, then mention what links the remaining statements:

(1) Formulated a law for cooling / Formulated the law of conservation of energy / Studied the speed of sound in air / Made contributions in the field of optics.

(2) Depends on a single parent / Produces identical individuals / Depends on meiosis / Vegetative reproduction is one of its forms.

[B] Study the following shapes, then answer the questions below each one:

(1)



What is the name of this process?
And what is the result of this process?

(2)



Why are the inner cup and the outer cup used in this experiment?

(3)



What is the value of the force F required to achieve equilibrium?

(4)



What is the mechanical advantage of the wheelbarrow?

4 [A] Choose the correct answer:

- (1) The winds associated with the low-pressure system rotate
- (a) in the direction of the clock's rotation, outward away from the center of the low-pressure system.
 - (b) in the direction of the clock's rotation, inward toward the center of the low-pressure system.
 - (c) in the opposite direction of the clock's rotation, outward away from the center of the low-pressure system.
 - (d) in the opposite direction of the clock's rotation, inward toward the center of the low-pressure system.
- (2) All the following are correct, **except**
- (a) hydrogen is the fuel of the future.
 - (b) oxygen percentage in atmospheric air is 78%
 - (c) the gas CO_2 is produced from the combustion of hydrocarbons.
 - (d) methane percentage in natural gas is 93%

[B] Answer the following questions:

- (1) **Mention** the distinguishing properties of the two forces described by Newton's third law.
- (2) **Explain the difference between** the petals of Egyptian rose flower and petunia flower.
- (3) **Explain the relationship between** atmospheric pressure in polar regions and temperature and humidity percentage in each of them.

Model 7

1 [A] Write the scientific term of each of the following statements:

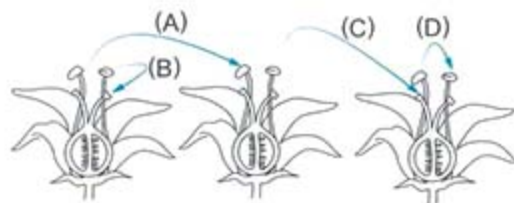
- (1) The distance traveled by the moving object during the stopping time period.
- (2) Activation of a somatic cell and its mitotic division several times continuously and abnormally.

[B] (1) Methane gas is considered one of the hydrocarbons:

- 1- **Write the balanced symbolic equation** representing the combustion of methane gas.
- 2- **What is the name and type of fuel** that consists mostly of methane?
- 3- **Mention only two types** of materials used in methane fire extinguishers.
- (2) **What** are the elements affecting weather and climate? **And what** is the most important factor among them?

2 [A] Choose the correct answer:

- (1) From the opposite figure:
Which letter indicates cross-pollination?
- (a) (A).
 - (b) (B).
 - (c) (C).
 - (d) (D).



(2) To define force, it is necessary to specify

- (a) its magnitude and line of action.
- (b) its direction and point of application.
- (c) its magnitude and direction.
- (d) its line of action and point of application.

[B] (1) Explain the relationship between :

- 1- Initial temperature **and** final temperature in exothermic reactions.
- 2- Wind speed **and** atmospheric pressure values in adjacent regions.

(2) **The tennis racket is an example of third class levers:**

- 1- **Which is greater in the tennis racket:** effort arm **or** load arm? Explain.
- 2- **Do** the two forces used in the tennis racket act on one object or two objects? Explain.

3 [A] Put (✓) in front of the correct statement and (X) in front of the incorrect statement, with correction :

- (1) The density of dry air equals the density of humid air. ()
- (2) After the fruit is formed, the calyx remains in the fruits of zucchini and eggplant. ()

[B] (1) For combustion to occur, three elements must be present:

- 1- **Identify** these elements.
- 2- **What** is the shape that represents these elements?

(2) **What happens when:**

- 1- A stationary object is affected by a net force of zero.
- 2- Division of a reproductive cell by meiosis.

4 [A] Complete the following sentences:

- (1) chemical bonds are an exothermic process, while bonds are an endothermic process.
- (2) The wind moves at the Equator in a path, while it moves in both hemispheres of the Earth in paths.

[B] (1) Newton's second law explains the effect of net force on changing the speed of objects over time:

- 1- **What is the description** given to an object whose velocity changes over time?
- 2- **What happens when** the force acting on an object is doubled while the mass remains constant?

(2) **Compare between each of the following:**

- 1- Pollination by wind **and** pollination by insects «**In terms of:** Properties of pollen grains».
- 2- Sodium carbonate and sodium bicarbonate «**In terms of:** The thermal change resulting from their dissolution in water».

1 [A] Mention one example for each of the following:

- (1) Synthetic fuel.
- (2) There is no relationship between the size of the living organism and the number of chromosomes in its somatic cells.

[B] (1) Fire extinguishing depends on three basic principles:

- 1- **Identify** these three principles.
- 2- **How** are sodium fires extinguished?

(2) What happens when an unbalanced net force acts on:

- 1- A moving object in the opposite direction of its motion.
- 2- A stationary object.

2 [A] Correct the underlined words:

- (1) The thermometer represents the system in the activity of calculating the thermal change in the dissolution process.
- (2) The extent to which the lever saves time is inferred from its mechanical advantage.

[B] Answer the following questions:

- (1) **Explain** the idea of working of drones.
- (2) **Describe** the peduncle of the simple raceme inflorescence, **and give an example.**
- (3) **Explain the relationship between** the spread of influenza **and** both air temperature and humidity.
- (4) **Why** do we feel cold hands when using antiseptic hand gel?

3 [A] Complete the following sentences:

- (1) Weather maps show the movement of air based on wind speed and systems.
- (2) The effort arm is always greater than the load arm in class levers and sometimes in class levers.

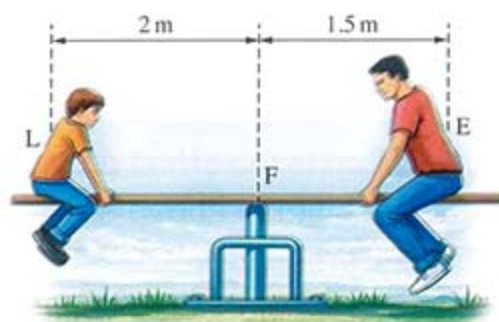
[B] (1) 1- Calculate the value of the net force acting on a car with a mass of 1200 kg that makes it move with an acceleration of 3 m/s^2

2- From the opposite figure:

Calculate the boy's mass when the seesaw is balanced.

If the man's weight is 600 N

[Note that the Earth's gravitational acceleration equals 10 m/s^2]



(2) Give reasons for the following:

- 1- The ignition of a matchstick when it rubs against a rough surface.
- 2- The variation of climatic zones on the Earth's surface.

4 [A] Write the scientific term of each of the following statement:

- (1) An opening through which the nucleus of the pollen grain reaches the nucleus of the ovule.
- (2) The maximum mass of water vapour that the same volume of air can carry at a certain temperature.

[B] (1) What happens when:

- 1- The sudden movement of a bus "In relation to the movement of the passengers".
- 2- Ignition of a mixture of oxygen and acetylene gases.

(2) Answer the following questions:

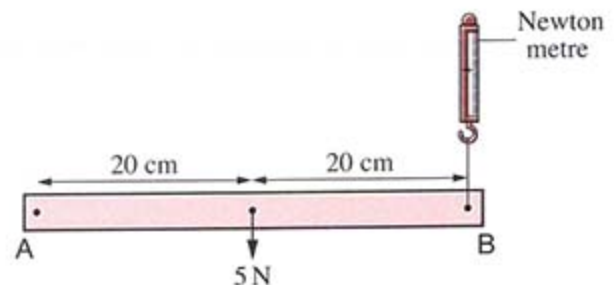
- 1- What are the parts of the pomegranate flower that remain after the fruit is formed?
- 2- Explain the relationship between atmospheric pressure and the length of the mercury column in the mercury barometer.

Model 9

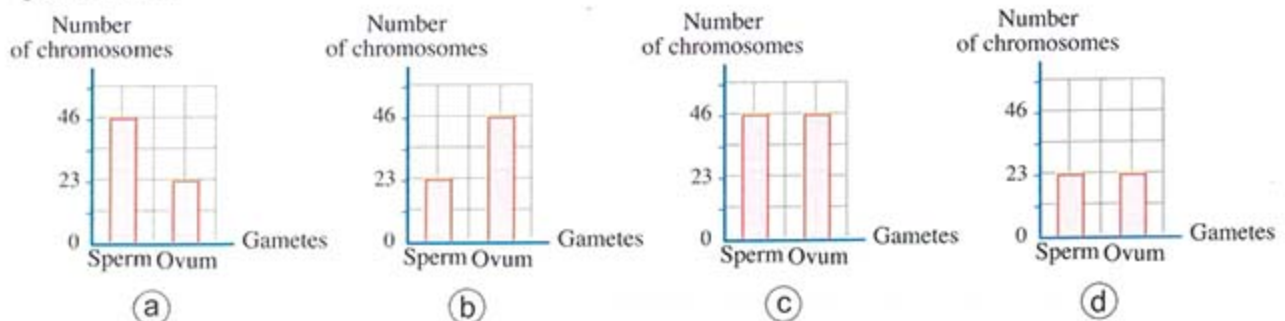
1 [A] Choose the correct answer:

- (1) A metal rod AB weighing 5 N rotates around point (A). What is the reading of the Newton meter when the rod is balanced horizontally?

- (a) 2.5 N (b) 5 N
(c) 8 N (d) 10 N



- (2) Which of the following expresses the number of chromosomes in human gametes?



[B] What is the effect of each of the following:

- (1) Altitude above sea level increases "On both temperature and atmospheric pressure".
- (2) Placing a glass bell jar over a lit candle, with explanation.

- (3) Pushing of a shell forward from a cannon.
- (4) Dissolution of ammonium nitrate salt in water "On the temperature of the solution regarding the temperature of the water".

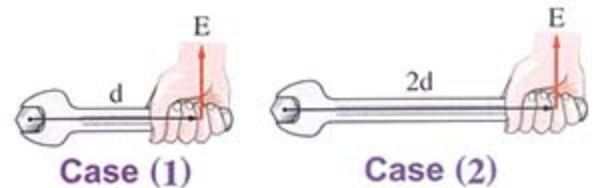
2 [A] Put (✓) in front of the correct statement and (X) in front of the incorrect statement, with correction:

- (1) Newton's third law shows that the net force acting on an object causes its velocity to change over time. ()
- (2) Reproduction occurs immediately after the germination process. ()

[B] (1) Explain each of the following:

- 1- The fulcrum and effort in the biceps muscle as a third class lever
- 2- From the opposite figure:

In which of the two cases (1) , (2) is the effort saved greater? Explain.



(2) Answer the following questions:

- 1- If the energy inputs in a chemical reaction are 1370 kJ and the energy outputs are 1840 kJ

Is this reaction exothermic or endothermic? With explanation

- 2- Mention three modern techniques used in weather forecasting "Within what you have studied".

3 [A] Write the scientific term of each of the following statements:

- (1) A swollen part at the end of the flower pedicel that carries the floral leaves.
- (2) The amount of energy produced from burning 1 g of fuel in an abundance of oxygen gas.

[B] (1) Gears, belts and levers are considered simple machines:

- 1- Explain the purpose of using gears and belts.
- 2- Define the lever.

(2) What is the difference between: first class levers and third class levers

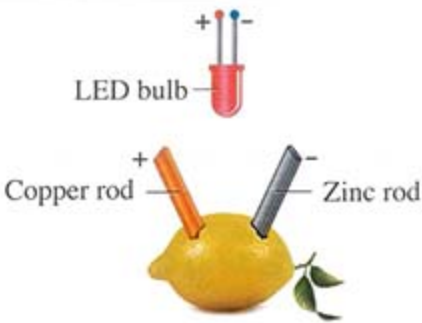
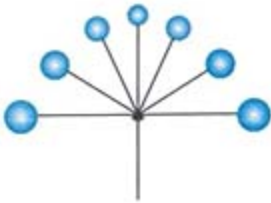
"In terms of: The position of the force, The position of the load and the fulcrum".

With one example for each of them.

4 [A] Complete the following sentences:

- (1) The phenomenon of breeze occurs at night because water bodies are than the adjacent land.
- (2) High pressure systems are represented on weather maps by the letter in colour.

[B] (1) Study the following two figures, then answer the question below each of them:

 1- What happens when both the copper rod and the zinc rod are connected to the LED bulb? With explanation.	 2- What is the type of inflorescence? And what is the direction of blooming of flowers?
---	--

(2) Give reasons for the following:

- 1- Extinguishing wood fires with water.
- 2- Water is not used to extinguish petroleum oil fires.

Model 10

1 [A] Choose the correct answer:

- (1) Which of the following expresses the reaction of potassium permanganate with glycerin?
 - (a) An endothermic spontaneous combustion reaction.
 - (b) An exothermic spontaneous combustion reaction.
 - (c) It is done by heating even though it is exothermic.
 - (d) It is done by cooling even though it is endothermic.
- (2) Which of the following is correct?
 - (a) The temperatures are equal at latitude 30° north and latitude 0°
 - (b) The temperatures are equal at latitude 30° south and the Equator.
 - (c) The temperature at latitude 30° north is higher than at latitude 0° in winter.
 - (d) The temperature at latitude 60° north is lower than at the Equator in winter.

[B] (1) The following two diagrams express one of the factors affecting acceleration when the other factor is constant in one of the activities:



Figure (1)



Figure (2)

- 1- **Identify** each of (the independent variable, the controlled variable) in this activity.
- 2- **What** do you conclude from this activity?
- 3- **Draw** a graph that expresses the relationship between acceleration and mass.

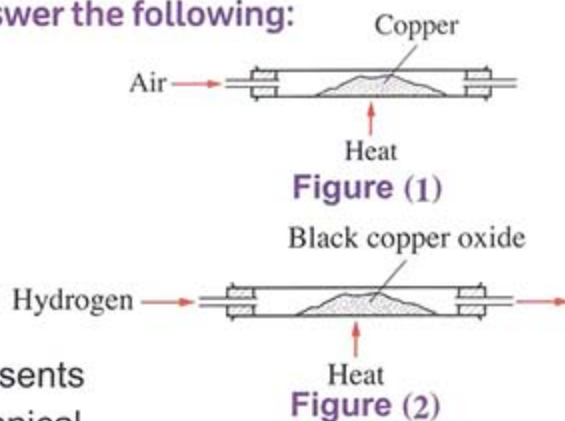
- (2) **How** does the of crossing-over phenomenon contribute to the diversity of genetic traits in individuals of the same species?

2 [A] Complete the following sentences:

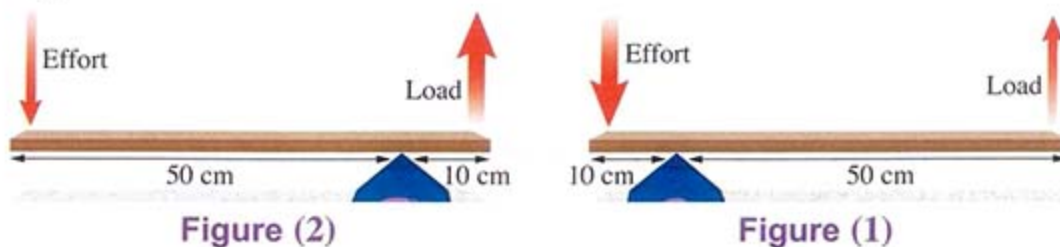
- (1) In the stage, the seed turns into a seedling and in the stage, the flowers turn into fruits containing seeds.
- (2) If the minimum temperature on a certain day is 14°C and the maximum is 34°C then the daily temperature range on that day equals and the daily average temperature equals

[B] (1) Study the two opposite diagrams, then answer the following:

- 1- **What** is the change that occurs in the mass of both copper and copper oxide after a period of time? Explain.
- 2- **Write** the symbolic equation representing the reaction that occurred in the figure (2).



- (2) **Which** of the following two diagrams represents the lever that achieves the greatest mechanical advantage? **Calculate it.**



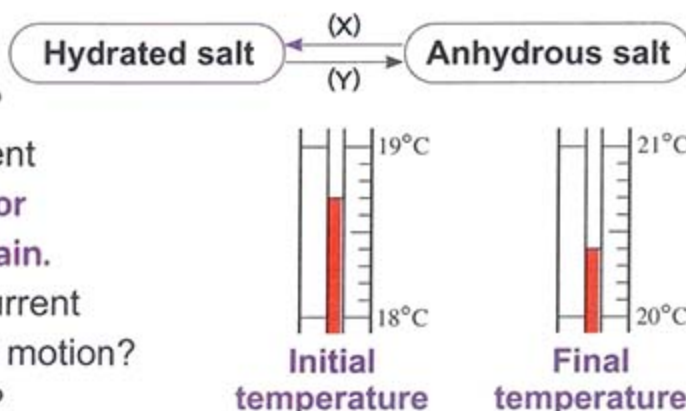
- (3) **Mention two methods** to achieve safety and security while driving in modern cars.

3 [A] Write the scientific term of each of the following statements:

- (1) Reactions that require the absorption of thermal energy from the surroundings to occur.
- (2) For every action, there is an equal and opposite reaction.

[B] Answer the following questions:

- (1) **What** does each of (X) and (Y) represent in the opposite diagram?
- (2) **Does** the opposite diagram represent the dissolution of calcium chloride **or** ammonium chloride in water? **Explain.**
- (3) **What happens when** the electric current is switched off from a fan during its motion? And what law does it demonstrate?
- (4) **What is the value** of normal atmospheric pressure in the units mb and mm.Hg?



4 [A] Correct the underlined words:

- (1) The possibility of harvesting potato tubers is indicated when their leaves turn into red.
- (2) Tweezers are used for multiplying force.

[B] (1) Mention what the following icons indicate:



(1)



(2)



(3)



(4)

- (2) **What is** the medical benefit of hibiscus flowers?
- (3) **What is** butagas composed of?

Model

1

1

(A) (1) (b)

(2) (b)

(B) (1) The total force in magnitude and direction resulting from the effect of a group of forces on an object.

(2) Energy is neither created nor destroyed, but can be transformed from one form to another.

(3) A vital process in which two parental individuals of the same species, one male and the other female, participate to produce new individuals that carry a combination of genetic traits between the both parents.

(4) The weight of a column of air with a cross-sectional area of 1 m^2 and a length equal to the height of the atmosphere.

2

(A) (1) ✓ (2) Third class levers

(B) (1) Its colour changes from blue to white.

(2) It continues to move at the same constant velocity.

(3) Two new daughter cells ($2n$) are produced, identical to the parent cell.

(4) The temperature decreases.

3

(A) (1) $\text{CaO} / \text{Ca(OH)}_{2(s)}$

(2) sperms / pollen grains.

(B) (1) By evacuating the air to provide a low-oxygen environment, which reduces oxidation and reduction reactions that lead to spoiling of food.

$$(2) a = \frac{F}{m} = \frac{1300}{1000} = 1.3 \text{ m/s}^2$$

(3) Willow flower.

(4) Doubling the force when removing a nail fixed in a wooden board.

4

(A) (1) Eco-friendly freon. (2) Weather.

(B) (1) Exothermic reaction / Because the amount of released energy during forming new bonds in product molecules is greater than the amount of absorbed energy when breaking bonds in reactant molecules.

(2) First class lever / Because the fulcrum (pivot point) is located between the effort and the load.

(3) Unisexual male flower / Because it contains only male organs.

(4) Stevenson screen contains instruments that measure temperature, atmospheric pressure, and humidity.

Model

2

1

(A) (1) Newton's first law (law of inertia).

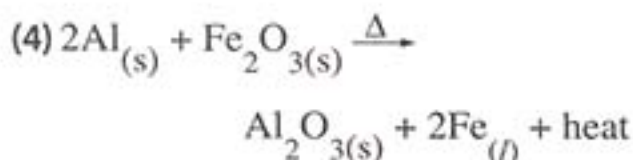
(2) first meiotic.

(B) (1) (X) represents the concentrated acid, because the released energy from dilution is absorbed by water without causing damage.

(2) $\therefore \text{Effort} \times \text{Effort arm} = \text{Load} \times \text{Load arm}$

$$\therefore \text{Load} = \frac{100 \times 40}{160} = 25 \text{ N}$$

(3) Because the Sun rays are perpendicular to these areas.



2

(A) (1) (b) (2) (d)

- (B) (1) The moving body stops and the stationary body moves at the same velocity as the moving body before the collision.
 (2) Exothermic dissolution.
 (3) Because it contains the four floral whorls.
 (4) A decrease in air density leads to a decrease in atmospheric pressure.

3

(A) (1) stamens / carpels.
 (2) second / third.

(B) (1) Because the atmosphere is affected by a large number of variables.

(2) Oxidizing agent	Reducing agent
- It is the substance that gives oxygen or takes hydrogen away during the chemical reaction. - Undergoes a reduction process.	- It is the substance that gives hydrogen or takes oxygen away during the chemical reaction. - Undergoes an oxidation process.

(3) the value of the net force
 $= 5 - 3 = 2 \text{ N}$ to the right

(4) The daily thermal range is the difference between the maximum and minimum temperatures in a single day, while the daily average temperature is their arithmetic mean in one day.

4

(A) (1) 3000°C

(2) The mechanical advantage of the lever

$$= \frac{\text{Load}}{\text{Effort}} = \frac{2500}{500} = 5$$

(B) (1) 1- They are curved lines connecting points of equal atmospheric pressure at sea level.

2- Reactions that require the absorption of thermal energy from the surroundings, causing its temperature to decrease.

(2) Represents the fulcrum (pivot point).

(3) Parenchymal cells and collenchymal cells.

Model

3

1

(A) (1) Anhydrous cobalt chloride.

(2) Stopping time.

(B) (1) 1- Asexual reproduction.

2- Occurs by mitosis.

(2) 1- Cruise control.

2- Self-heating cans.

2

(A) (1) (b) (2) (d)

(B) (1) 1- the tower crane (winch).

2- Cherry (or Iberis).

(2) 1- They are used to relieve pain associated with muscle fatigue.

2- Collecting weather data received in the oceans from the sensors, organizing and processing them, then sending them via satellites to observation centers around the world.

3

(A) (1) Luminous insects

(2) humidity.

(B) (1) 1- It is the horizontal movement of air across the Earth's surface caused by difference in atmospheric pressure between regions, due to unequal heating of the Earth's surface.

2- They are storms which are loaded with sand and dust.

(2) 1- It consists of several stamens, each made up of a thin filament ending with an anther.

2- In low-pressure regions, ascending air currents are formed, while in high-pressure regions, descending air currents are formed.

4

(A) (1) second / body weight.

(2) blue / yellow

(B) (1) 1- Part (1).

2- Because its anthers are long and hanging outside, and its stigmas are feathery, sticky, and hanging outside the flower.

(2) 1- Ethyl alcohol (ethanol), used as fuel for cars after mixing it with gasoline.

2- used in doubling the force or increasing speed.

Model 4

1

(A) (1) Barbecue tongs is a third class lever.

(2) Nutcracker is a second class lever.

(B) (1) 1- Mercury barometer / It is used to measure atmospheric pressure.

2- Figure (X) / Due to the decrease in the length of the mercury column at the summit of the mountain, as a result of the decrease in atmospheric pressure.

(2) 1- The temperature usually changes by a constant amount.

2- It produces 8 cells according to the relation $N = 2^n$

2

(A) (1) Newton meter. (2) Chamomile.

(B) (1) Their activity leads to raising the temperature of straw and wood until reaching the ignition point.

(2) Protecting the internal parts of the flower, especially before blooming.

(3) Determining the timing of planting, irrigation, harvesting crops, and pest control, which increases agricultural productivity and reduces losses.

(4) It reduces the friction forces between the disc and the table, which makes the disc keeps its state of motion for a longer period.

3

(A) (1) Force / mass.

(2) Hermann Von Helmholtz / Isaac Newton.

(B) (1) * The ovary in the peach flower: Contains one ovule.

* The ovary in the pea flower: Contains many ovules.

(2) * Elastic collision: There is no loss of energy.

* Inelastic collision: There is a loss of energy in the form of heat, sound, or deformation of the object's shape.

- (3) • **Natural gas:** Odorless.
 • **Ethane thiol gas:** Has a garlic smell.

(4) • **In the Northern Hemisphere:**

The winds deflects to the right of their original direction (in a clockwise direction).

• **In the Southern Hemisphere:**

The winds deflects to the left of their original direction (in an anticlockwise direction).

4

- (A) (1) (b) (2) (d)

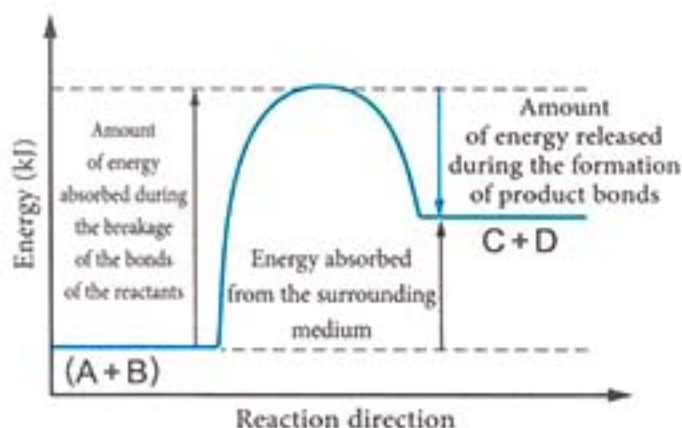
(B) (1) He believed that objects do not continue to move unless there is a force continuously acting on them.

(2) (X) : Reproduction (pollination and fertilization).

(Y) : Germination.

(3) The specific heat of water is higher than that of the adjacent land.

(4)



Model 5

1

- (A) (1) Fuel. (2) The hot (tropical) zone.

(B) (1) 1- An object keeps its state of rest or state of motion at constant velocity in a straight line, unless acted upon by external unbalanced forces.

2- It is a vital process in which the living organism produces new individuals of the same species, to ensuring its continuity and protecting it from extinction.

(2) 1- To reflect the sunlight.

2- Because the amount of released energy during forming new bonds in product molecules is less than the amount of absorbed energy during breakage bonds in reactant molecules.

2

- (A) (1) (c) (2) (c)

(B) (1) Figure (1) / Because the effort arm in figure (1) is greater than that in figure (2), and the longer the effort arm in the lever, the less effort is required and thus more effort is saved.

(2) Absolute humidity =

$$\frac{\text{The mass of water vapour}}{\text{The volume of air}} = \frac{10}{1} = 10 \text{ g/m}^3$$

Relative humidity =

$$\frac{\text{Absolute humidity}}{\text{Maximum capacity}} \times 100\% = \frac{10}{20} \times 100\% = 50\%$$

(3) Producing a spark used to ignite the mixture of gasoline and air in the combustion chamber of the car engine during starting.

(4) • **Symptoms:** Frequent sneezing and watery eyes.

• **Prevention:** staying away from areas with high levels of pollen grains.

3

(A) (1) fossil (2) second.

(B) (1) 1- When the net forces acting on the body equals zero.

2- During mating and when defending itself.

(2) 1- Because it is difficult to distinguish the colour of the sepals from the colour of the petals in it.

2- The Egyptian lynx lives in the hot region, while the polar bear lives in the northern polar region.

4

(A) (1) m/s^2 / N/kg

(2) black / reddish-brown.

(B) (1) 1- **fulcrum (pivot point)** : elbow joint.

Effort: the biceps muscle.

2- because it is used in precise and dangerous tasks.

(2) 1- Self-pollination.

2- • (1) : Stigma.

• (2) : Anther.

Model 6

1

(A) (1) Galileo. (2) somatic

(B) (1) 1- • NH_3 : Undergoes oxidation.

• O_2 : Undergoes reduction.

2- **Reducing agent:** NH_3

(2) 1- Because the direction of the load (movement of the load) is always opposite to the direction of the effort.

2- Because the descent of air currents over high-pressure regions leads to their warming and drying, so the weather in these areas is clear and sunny.

2

(A) (1) $\text{Ca(OH)}_{2(\text{aq})}$ / heat

(2) $\text{MgCl}_{2(\text{aq})}$ / $\text{H}_{2(\text{g})}$

(B) (1) 1- $\therefore$ Atmospheric pressure at the city (Y) (mb) =
$$\frac{\text{Atmospheric pressure (mm.Hg)}}{0.75}$$
$$= \frac{768}{0.75} = 1024 \text{ mb}$$

$\therefore$ The atmospheric pressure at city (X) is greater than at city (Y).

2- (4 tomato flowers) + (3 pumpkin flowers) = 7 floral whorls.

(2) 1- • **Anhydrous copper sulphate** :

$\text{CuSO}_{4(\text{s})}$

• **Hydrated copper sulphate** :

$\text{CuSO}_{4 \cdot 5\text{H}_2\text{O}_{(\text{s})}}$

2- • **Scissors** : First-class lever.

• **Nutcracker** : Second-class lever.

3

(A) (1) Formulated the law of conservation of energy / related to the scientist Isaac Newton.

(2) Depends on meiosis / Characteristics of asexual reproduction.

(B) (1) The fertilization process in the flower / Formation of the zygote.

(2) To increase thermal insulation.

$$(3) \therefore 75 + F + 10 = 15 + 35 + 50$$

$$\therefore F = 15 \text{ N}$$

(4) Mechanical advantage =

$$\frac{\text{Effort arm}}{\text{Load arm}} = \frac{1.2}{0.4} = 3$$

4

(A) (1) (d) (2) (b)

(B) (1) 1- Equal in magnitude.

2- Opposite in direction.

3- They act without a time difference.

4- They act on a single line of action.

5- They affect two different bodies.

(2) * **Petals of Egyptian rose flower :**

Separated and arranged in several floral whorls.

* **Petals of petunia flower :** Fused and arranged in one floral whorl.

(3) The decrease in both temperature and humidity in polar regions leads to the formation of a high atmospheric pressure region.

Model

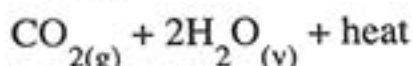
7

1

(A) (1) Stopping distance.

(2) The cancerous tumor.

(B) (1) 1- $\text{CH}_{4(g)} + 2\text{O}_{2(g)} \xrightarrow{\Delta}$



2- Natural gas, which is a type of fossil fuel.

3- * Foam. * Dry powder.
* Carbon dioxide gas.

(2) * Temperature. * Solar radiation.

* Atmospheric pressure.

* Wind. * Humidity.

* Condensation. * Precipitation.

**The most important factor is :
Temperature.**

2

(A) (1) (c)

(2) (c)

(B) (1) 1- The final temperature is greater than the initial temperature.

2- Wind speed increases as the difference between atmospheric pressure values in adjacent regions increases.

(2) 1- Load arm, because the tennis racket is an example of third class levers, and all third class levers have a mechanical advantage less than 1 since the load arm is greater than the effort arm.

2- On two objects, the ball exerts a force (action) on the racket, and the racket exerts a force (reaction) on the ball.

3

(A) (1) The density of dry air is greater than

(2) of tomatoes and eggplants.

(B) (1) 1- * Fuel. * Oxygen. * Heat.

2- Fire triangle (combustion triangle).

(2) 1- The object remains stationary.

2- Four cells (gametes) are produced, each with (n) chromosomes.

4

(A) (1) Forming / breakage

(2) straight / curved

(B) (1) 1- Moves with acceleration.

2- The acceleration of the object's motion increases to double.

(2) 1- * **In wind pollination:** The pollen grains are light, dry and smooth.

* **In insect pollination:** The pollen grains are sticky or rough.

- 2- • The dissolution of sodium carbonate in water: Exothermic.
 • The dissolution of sodium bicarbonate in water: Endothermic.

Model 8

1

- (A) (1) Hydrogen gas.
 (2) Each somatic cell in the elephant's body (larger in size) contains (56 chromosomes), and the number of chromosomes present in each somatic cell in the body of the crow (80 chromosomes) (smaller in size).
 (B) (1) 1- • Fuel removal.
 • smothering.
 • Cooling.
 2- By using sand.
 (2) 1- The velocity of the object decreases.
 2- It moves in the same direction as the effect of the net force.

2

- (A) (1) the surrounding medium
 (2) effort.
 (B) (1) It works by pushing air from the engines downward (action), followed by the air pushing the plane upward (reaction) with an equal force.
 (2) One long peduncle that continues to grow / stock plant (or snapdragon).
 (3) The spread of influenza increases when both temperature and relative humidity decrease.
 (4) Due to the absorption of heat from the hands when the alcohol present in the hand gel evaporates.

3

- (A) (1) masses / atmospheric pressure
 (2) second / first.
 (B) (1) 1- $F = m \times a$
 $F = 1200 \times 3 = 3600 \text{ N}$
 2- effort $\times$ effort arm = load $\times$ load arm
 $600 \times 1.5 = \text{load} \times 2$
 $\text{Load} = \frac{600 \times 1.5}{2} = 450 \text{ N}$
 $\therefore$ The boy's mass

$$= \frac{\text{Load (weight)}}{\text{Gravitational acceleration}}$$

$$= \frac{450}{10} = 45 \text{ kg}$$

 (2) 1- Because friction generates the heat necessary to start the exothermic combustion reaction.
 2- Due to the difference in the angle of inclination of sunlight falling on different zones of the Earth.

4

- (A) (1) Micropyle.
 (2) Maximum capacity of air.
 (B) (1) 1- The passengers are rushed backward due to inertia.
 2- The oxyacetylene flame is formed, which reaches a temperature of 3000°C
 (2) 1- Stamens and sepals.
 2- The length of the mercury column increases as atmospheric pressure increases, and vice versa.

Model 9

1

- (A) (1) (a) (2) (d)

- (B) (1) The temperature decreases, and as we rise above sea level, the weight of the air column decreases, so atmospheric pressure decreases.
 (2) The candle goes out due to the lack of the amount of oxygen inside the bell jar.
 (3) The cannon moves backward.
 (4) The temperature of the solution is lower than the temperature of the water.

2

- (A) (1) Newton's second
 (2) Vegetative growth occurs
- (B) (1) 1- • **Fulcrum (pivot point)**: Elbow joint.
 • **Effort**: The forearm muscle (biceps muscle).
 2- **The case (2)** / Because the effort arm in case (2) is double the effort arm in case (1) and as the effort arm increases, the required effort decreases and the mechanical advantage increases, thus the lever is more efficient in saving effort.
 (2) 1- **Exothermic** / Because the amount of released energy during forming new bonds in product molecules (energy outputs) is greater than the amount of absorbed energy during breakage bonds in reactant molecules (energy inputs).
 2- • Stevenson screen.
 • Weather buoys.
 • Radiosonde. • Satellites.
 • Weather stations.

"Any three of them"

3

- (A) (1) Receptacle.
 (2) The calorific value of fuel.
- (B) (1) 1- It is used to transmit motion and change speed.
 2- A strong arm that moves around a fulcrum (pivot point), and is affected by an effort and a load when used.
 (2) • **In first class levers**: The fulcrum (pivot point) is located between the effort and the load.

Examples: The seesaw, crowbar, pliers, scissors "one example only".

- **In third class levers**: The effort is between the load and the fulcrum (pivot point).

Examples: Tennis racket, tweezers, coal tongs, hand broom (brush), "one example only".

4

- (A) (1) land / warmer (2) H / blue
- (B) (1) 1- The bulb lights up / As a result of chemical reactions occurring inside the lemon, which produce an electric current that lights the bulb.
 2- A simple umbel inflorescence, its flowers bloom from the outside (the older flowers) to the inside (the younger flowers).
 (2) 1- Because of the high specific heat of water, which makes it absorbs a large amount of thermal energy, thus the temperature of the wood decreases below the ignition point and the fire is extinguished.

- 2- Because petroleum oil floats on the surface of water due to its lower density compared to water, which leads to the spread of fires instead of extinguishing them.

Model 10

1

- (A) (1) (b) (2) (d)

- (B) (1) 1- • The independent variable:

Mass.

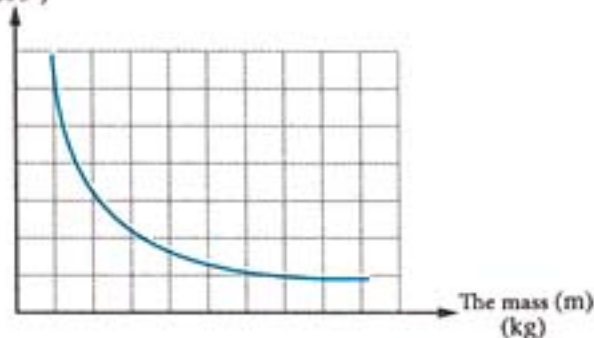
- The controlled variable:

The force acting on the object.

- 2- The greater the mass of an object, the less its acceleration when the applied force remains constant.

3-

Acceleration (a)
(m/s²)



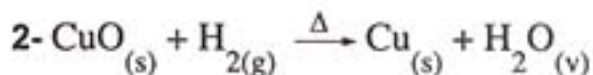
- (2) Genetic material exchange occurs between the non-sister chromatids of two homologous chromosomes, which are randomly distributed in the gametes responsible for sexual reproduction in living organisms.

2

- (A) (1) germination / floral reproduction.

(2) 20°C / 24°C

- (B) (1) 1- The mass of copper increases as it combines with oxygen of atmospheric air, while the mass of black copper oxide decreases as oxygen is removed from it by hydrogen.



- (2) Figure (2) / Because the effort arm is greater than the load arm.

• Mechanical advantage =

$$\frac{\text{Effort arm}}{\text{Load arm}} = \frac{50}{10} = 5$$

- (3) Seat belt and airbag.

3

- (A) (1) Endothermic reactions.

(2) Newton's third law.

- (B) (1) (X) : Adding drops of water.

(Y) : Heating.

(2) Calcium chloride, because its dissolution in water is exothermic.

(3) The fan blades continue to rotate for a few seconds after the electric current is switched off, according to Newton's first law (the law of inertia).

(4) 1013.25 mb , 760 mm.Hg

4

- (A) (1) yellow. (2) percise tasks.

- (B) (1) (1) : Rainfall.

(2) : Partly sunny weather with cloud formation.

(3) : Sunny weather.

(4) : Thunder and lightning.

(2) Lowering high blood pressure.

(3) It consists of a mixture of propane and butane after they are separated from natural gas.

حمل الآن

مجانا وحصريا

امتحانات رقم (3)

الترم الثاني



Model Exam  1 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2ND Term May 2026	توجيه عام العلوم لغات
	نموذج امتحان الفصل الدراسي الثاني / مايو 2026 / الصف الثاني الإعدادي ((الاجابة في نفس الورقة / صفحة واحدة))		

Answer the following questions

Question One : - Complete the following statements:

- 1- Newton's first law states that the object remains or in unless an external force affects on it.
- 2- The processes of material transformation and dissolution are Processes that are accompanied by or energy from the surrounding medium,
- 3- When balanced forces act on an object, the body..... While when unbalanced forces affect the same body it

Answer the following:

- 1- What makes a ball rolling on the ground gradually stop ?

What is meant by:

- 1- Fuel.....
- 2- Effort arm.....

Question Two : - What happens when:

- 1- No force affects on a stationary object
2. Increase both of the maximum and minimum temperatures?
- 3- The levers were not detected.

Write the scientific term:

- 1- Reproduction that occurs through two parent individuals of the same species, one male and the other female. (.....)
2. The amount of water vapor present in the air. (.....)
- 3- A fixed point on which a rigid bar rests. (.....)

Question Three : - Choose the correct answer:

- 1- Winds arise as a result of differences in between neighboring areas.
a- temperature b- atmospheric pressure c- humidity
- 2- The correct definition of endothermic dissolution is
a- A process in which thermal energy is absorbed from the surrounding environment.

- b- A process in which no exchange of thermal energy occurs.
- c- A process in which chemical energy is converted into thermal energy.
- d- A process in which thermal energy is released into the surrounding environment.

3-The correct equation for the reaction of quicklime with water is.....

- a) $\text{CaO} + \text{H}_2\text{O} \longrightarrow \text{Ca(OH)}_2 + \text{heat}$
- b) $\text{CaCO}_3 \longrightarrow \text{CaO} + \text{CO}_2$
- c) $2\text{Mg} + 2\text{HCl} \longrightarrow \text{MgCl}_2 + \text{H}_2$
- d) $2\text{H}_2 + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}$

What is the importance of each of the following:

1- Fuel

2- Weather Forecast Icons (Symbols)

Compare between each of the following:

The first, second and third class of levers in terms of: (definition - mentioning an example of each type - saving effort).

Question Four : - Give reason:

1. The decrease in temperature with increasing distance away from the Equator.

2- The radiosonde balloon is filled with helium or hydrogen gas.

3- Wind-pollinated plants produce pollen grains in very large numbers.

4- Second class levers always save effort .

Correct the underlined words:

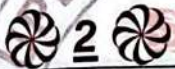
1- Vegetative reproduction is one of the forms of sexual reproduction.(.....)

Solve the following problems:

A lever affected by a force of 30 N, its length 20 cm, and a load of 20 N and a load arm length of 10 cm.

a- Is this lever balanced? and why?

b- If the lever is unbalanced, what is the length of the load arm that achieves balance?

Model Exam 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2ND Term May 2026	توجيه عام العلوم لغات
	نموذج امتحان الفصل الدراسي الثاني / مايو 2026 / الصف الثاني الإعدادي ((الإجابة في نفس الورقة / صفحة واحدة))		

Answer the following questions

Question One : - Complete the following statements:

- 1- The combination of molecules of some substances with a specific number of water molecules. These substances are called and if the water molecules are removed by heating, the molecules are called
- 2- Newton's second law states that the resulting force exerted on an object is equal to.....x.....
- 3- Ammonium nitrate (NH_4NO_3) is used ininstant pressure compresses because its dissolution in water is an endothermic process.

Answer the following:

- 1-When pulling the rope between two groups which the force does each team feel ?

What is meant by:

- 1- Combustion.....
- 2- Force.....

Question Two : - What happens when:

- 1- A constant force affects on an object in relation to its acceleration of motion

- 1- Anthers and stigmas do not mature at the same time?

- 13 - The mass doubles as the force is constant. (related to the acceleration).

Write the scientific term:

1. The actual mass of water vapor present in a given volume of atmospheric air. (.....)
- 2- Levers where the fulcrum between effort and load. (.....)
- 3- The fusion of the nucleus of the male gamete (n) with the nucleus of the female gamete (n) to form a zygote that carries the full number of chromosomes (2n). (.....)

Question Three : - Choose the correct answer:

1- Which of the following did Newton discover?

- a) Electricity
- b) Gravity
- c) Nuclear Forces
- d) Laws of Electromagnetism

2- A common example of endothermic dissolution is

- a- The dissolution of sodium carbonate.
- b- Dissolving (NH_4NO_3) in water.
- c- The dissolution of sodium hydroxide.
- d- The dissolution of calcium chloride.

3- Examples of endothermic reactions in everyday life include

- a) The thermal decomposition of limestone
- b) The thermite reaction
- c) Fuel combustion
- d) Respiration in living organisms

What is the importance of each of the following:

1- Spark plugs.

2- The parachute in the radiosonde

Compare between each of the following:

3- Androecium and gynoecium in terms of structure and function.

Question Four : - Give reason:

1. The variation of atmospheric pressure from one region to another.

2- The importance of satellites in meteorology.

3- In inelastic collisions, there is a loss of kinetic energy

4- The importance of the floral envelope in flowers such as the Narcissus flower.

Correct the underlined words:

1- Gamete cells contain the full number of chromosomes found in somatic cells. (.....)

Solve the following problems:

A person pulled a 10 kg block box with a force of 50 N on a horizontal frictionless surface. How much acceleration does the box move?

Model Exam 3	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2ND Term May 2026	توجيه عام العلوم لغات
	نموذج امتحان الفصل الدراسي الثاني / مايو 2026 / الصف الثاني الاعدادي ((الاجابة فى نفس الورقة / صفحة واحدة))		

Answer the following questions

Question One

Complete the following statements:

- 1- If the force acting on an object is zero, then of the body does not change.
- 2- Exothermic dissolution is accompanied by.....Such as sodium hydroxide,and
- 3- If the effort exerted is half the value of the resistance and the load arm is 50 cm then the effort arm is equal to.....cm.

Answer the following:

A rocket that goes forward when the gas exits backwards. This is explained by Newton's third law

What is meant by:

- 1- Winds.
- 2- Zygote in the plant.

Question Two

What happens when:

- 1- A person pushing a heavy vehicle
2. We move higher above sea level?
- 3 - Adding water to concentrated sulphuric acid.

Write the scientific term:

- 1- Reactions that require the absorption of thermal energy from the surrounding environment, causing its temperature to decrease. (.....)
- 2- Levers where the effort is between the load and the fulcrum point. (.....)
- 3- Predicting future weather conditions in a certain place. (.....)

Question Three

Choose the correct answer:*

1- Which of Newton's laws explains the relationship between force, mass, and acceleration?

- a) First Law
- b) Second Law
- c) Third Law
- d) Law of Attraction

2- A common example of exothermic dissolution is

- a- Dissolving potassium sulphate.
- b- Dissolving ammonium nitrate (NH_4NO_3) in water.
- c- Dissolving sodium hydroxide.
- d- Dissolving NaHCO_3 .

3- Air always moves from areas of pressure to areas of pressure:

- a- high/low
- b- low/high
- c- low/low

What is the importance of each of the following:

1- Using sand or foam extinguishers to put out some fires.

2- Meteorological satellites

Compare between each of the following:

Bisexual flowers and unisexual flowers.

Question Four

Give reason:

1. The variety of weather and climate elements.

2- The Stevenson screen is placed away from trees and buildings.

3- Pollen grains in insect-pollinated plants are sticky or rough.

4- A moving ball stops when it hits a wall

Correct the underlined words:

1- Mitosis is known as reduction division. (.....)

Solve the following problems:

An object with a mass of 15 kg is placed on the ground. How much force is needed to lift it vertically? (Note that the acceleration of gravity = 10 m/s^2)

Model Exam  4 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2ND Term May 2026	توجيه عام العلوم لغات
	نموذج امتحان الفصل الدراسي الثاني / مايو 2026 / الصف الثاني الاعدادي ((الاجابة فى نفس الورقة / صفحة واحدة))		

Answer the following questions

Question One

Complete the following statements:

- 1- In elastic collision between two objects, the relative velocity of the two objects after the collision is their relative velocity before collision
- 2- The color of hydrated copper sulphate is while the anhydrous copper sulphate is
- 3- Second class levers are different from third class levers in

Answer the following:

- 1- illustrates inertia : Give an example from your daily life

What is meant by:

- 1- Coriolis effect.

- 2- Fertilization.

Question Two

What happens when:

- 1- Dropping concentrated sulphuric acid on the wall of container contains water.
- 2- The effective force increases when pushing a box on a smooth surface relative to the acceleration
- 3- The specific heat of water differs from that of land at night?

Write the scientific term:

- 1- Levers where the load is between the effort and the fulcrum point. (.....)
- 2- Energy cannot be created or destroyed, but it can be converted from one form to another. (.....)
- 3- The male reproductive organ in the flower, consisting of several stamens. (.....)

Question Three

Choose the correct answer:

- 1- Why is Newton considered one of the greatest scientists?
- a) because he invented electricity
 - b) because he contributed to physics and mathematics
 - c) because he discovered penicillin
 - d) because he invented the airplane
- 2- The rotation of the Earth around its axis causes the deflection of winds, known as
- a- greenhouse effect
 - b- Coriolis effect
 - c- atmospheric pressure
- 3- The thermite reaction is used in
- a) Cooling drinks
 - b) welding railroad tracks
 - c) Making lemon batteries
 - d) making candy

What is the importance of each of the following:

1- Closing the gas valves in case of a fire.

2- The radiosonde balloon

Compare between each of the following:

Pollen grains in wind-pollinated flowers and pollen grains in insect-pollinated flowers.

Question Four : - Give reason:

1- In some countries, biofuel is mixed with gasoline.

2- The substance that happened to oxidation process is called the reducing agent

3- The boat moves backwards when you jump from it towards the shore

4- Anthers hang outside the flowers of some plants that are pollinated by wind.

Correct the underlined words:

1- Asexual reproduction depends on meiosis. (.....)

Solve the following problems:

An object with a mass of 5 kg is affected by a force of 20 newtons Calculate the acceleration

Model Exam 5	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2ND Term May 2026	توجيه عام العلوم لغات
	نموذج امتحان الفصل الدراسي الثاني / مايو 2026 / الصف الثاني الاعدادي (الاجابة في نفس الورقة / صفحة واحدة)		

Answer the following questions

Question One

Choose the correct answer:

- The relationship between net force, mass, and acceleration represents the law of
 a) Newton's first law b) Newton's second law
 c) Newton ' s third law d) Universal gravitation
- The type of cell division that produces cells containing half the chromosome number of the original cell is
 a) mitosis b) meiosis
 c) binary fission d) cytoplasmic division

Give reasons for the following:

- A person feels warm when quicklime powder is dissolved in water.
.....
- Action and reaction do not cancel each other.
.....
- An ovum contains half the chromosome number of a somatic cell.
.....
- Temperature decreases as altitude increases.
.....

Question Two

Complete the following statements:

- Physical quantities that require magnitude and direction to be defined are called quantities.
- In the Northern Hemisphere, winds are deflected to the due to the Coriolis effect.

What happens if:

- Water is used to extinguish a sodium fire?
.....
- Two equal forces acting in opposite directions affect a body?
.....
- Crossing over does not occur during meiosis?
.....

4- The Earth does not rotate on its axis?

Question Three

Write the scientific term for each statement:

- 1- A resultant force equal to zero. (.....)
- 2- The re-arrangement of genetic material between homologous chromosomes during the first meiotic division. (.....)

Compare between:

- 1- Exothermic and endothermic reactions.
- 2- Elastic and inelastic collisions.
- 3- Somatic cells and reproductive cells.
- 4- Temperature in polar regions and at the equator.

Question Four

Correct the underlined words:

- 1- The change of matter directly from the solid state to the gaseous state is called melting. (.....)
- 2- Pollen grains of insect-pollinated flowers are transferred by wind. (.....)

State the importance of each of the following:

- 1- Understanding the requirements of combustion reactions.
- 2- Studying collisions in physics.
- 3- Meiosis in living organisms.
- 4- Satellites in weather forecasting

Model Exam  6 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2ND Term May 2026	توجيه عام العلوم لغات
	نموذج امتحان الفصل الدراسي الثاني / مايو 2026 / الصف الثاني الاعدادي ((الاجابة فى نفس الورقة / صفحة واحدة))		

Answer the following questions

Question One

Complete the following statements:

1- When you sit in a car that suddenly stops, your body leans forward due to

2- When the released energy from combination of solute with solvent is greater than the absorbed energy, the solubility is

3- Increasing the length of the effort arm leads to

Answer the following:

1- What is the mathematical relationship between force and acceleration ?
.....

What is meant by:

1- Cross pollination.
.....

2- Isobars.
.....
=====

Question Two

What happens when:

1- If the energy required to break the bonds in a reaction exactly equal to the energy released when the bonds were formed?
.....

2- A small car collides with a big car with a low speed (in terms of kinetic energy)
.....

3. We move closer to or farther away from the Equator?
.....

Write the scientific term:

1- The distance between the weight representing the load and the fulcrum point. (.....)

2- A diagram showing the path and changes of energy during a chemical reaction from reactants to products. (.....)

3- A device is carried by a balloon to measure temperature, pressure, and humidity in the upper layers of the atmosphere. (.....)
=====

Question Three

Choose the correct answer:

1- If the energy released when bonds are formed is greater than the energy absorbed when bonds are broken, the reaction is

- a) Endothermic b) Exothermic
c) Thermally neutral d) Balanced

4- When instant cold compresses are used, it works by the blood vessels in the affected area, which leads to reduced blood flow and reduced swelling.

- a) Widening b) narrowing c) Heating d) Dissolving

3- Weather forecasts help farmers determine the times of

- a) irrigation b) harvesting c) both of them

What is the importance of each of the following:

1- lever

2- Placing the Weather Kiosk away from trees and buildings...

Compare between each of the following:

Self-pollination and cross-pollination. (in terms of definition and how each occurs)

Question Four : - Give reason:

1 - A small percentage of ethanethiol gas is added to both natural gas and butane gas.

2-Food can be preserved by evacuating air from preservation bags.

3- The Stevenson screen is painted with white color.

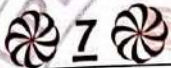
4- Petals in many flowers are brightly colored and have a Fragrant scent

Correct the underlined words:

1- The first meiotic division is a mitotic division. (.....)

Solve the following problems:

A type of first class lever had a force of 40 N and a effort arm of 5 cm. It affected a load of 100 N. Calculate the length of the load arm? Does the lever save effort or not?

Model Exam 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2 ND Term May 2026	توجيه عام العلوم لغات
	نموذج امتحان الفصل الدراسي الثاني / مايو 2026 / الصف الثاني الاعدادي ((الاجابة فى نفس الورقة / صفحة واحدة))		

Answer the following questions

Question One

Complete the following statements:

- 1- Newton's third law states that for every action there is..... equal inand opposite in
- 2- Instant Hot compresses help relieving the pain of.....
- 3- After fertilization, the ovary matures and becomes a while the ovules change into

Answer the following:

A car gains more speed when the engine power increases. What law makes this clear ?

What is meant by:

- 1- Flower.
- 2- Low-pressure system (L).

Question Two : - What happens when:

- 1- Thermometer reading when: ammonium chloride powder dissolves in water, magnesium strip reacts with hydrochloric acid?
- 2- The driver presses the brakes of a car that is moving at a constant speed suddenly relative to the passengers
- 3- Humidity increases (with respect to pressure)?

Write the scientific term:

- 1- A chemical reaction that results in the release of heat energy from the reaction products to the surrounding environment. (.....)
2. Buoys used to collect data in oceans and transmit it via satellites. (.....)
- 3- The transfer of pollen grains from the anthers of a flower to the stigmas of another flower on a different plant of the same species. (.....)

Question Three : - Choose the correct answer:

- 1- Weather forecast aim in protection of lives from
a) earthquakes b) thunderstorms c) volcanoes
- 2- Raise the temperature of the water when dissolved in it.
(a) Ammonium nitrate (b) Potassium chloride
(c) Sodium hydroxide. (d) Hydrated copper sulfate.
- 3- When ammonium chloride powder is added to barium hydroxide and the mixture is stirred, we observe
a) The temperature of the beaker rises.
b) The mixture ignites.
c) The temperature of the beaker drops and a layer of frozen water forms.
d) No change occurs.

What is the importance of each of the following:

1- Tweezers:

2- The slanted openings in the Stevenson screen

Compare between each of the following:

Sexual reproduction and asexual reproduction.

Question Four : - Give reason:

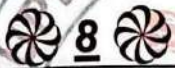
- 1- Fireflies are called by this name (in relation to energy transformations).
- 2- Black copper oxide is reduced when a stream of hydrogen gas passed over it.
3. The rate of influenza spread increases in winter.
- 4- The balloon filled with air bounces when it is released

Correct the underlined words:

1- Vegetative reproduction leads to variation in the inherited characteristics of the resulting individuals. (.....)

Solve the following problems:

Calculate the acceleration at which a car of mass 1000 kg moves when the engine force is 1300 N (Ignoring friction force affecting the car).

Model Exam 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2ND Term May 2026	توجيه عام العلوم لغات
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Answer the following questions

Question One

Complete the following statements:

- 1- The oxidizing agent undergoes a process of.....and the reducing agent undergoes a process of.....
- 2- Air currents in a high-pressure area are leading to dry and clear weather.
- 3- First class levers save effort when.....is longer than

Answer the following:

Mention an example from daily life that illustrates Newton's third law.

What is meant by:

1- Fuel calorific value:

2- Radiosonde.

Question Two : - What happens when:

1- Your friend claims that self-heating cans can be reused by adding water to them again after the reaction has finished and they have dried out. Do you agree with him? Why?

2- A person jumps in a boat that is on the surface of the water

3- Temperature increases (with respect to pressure)?

Write the scientific term:

1- Specialized cells responsible for sexual reproduction in living organisms.

2- A chemical process in which the bonds in the molecules of the reactants are broken and new bonds are formed in the molecules of the products.

3- Satellites that rotate around the Earth to provide comprehensive weather images and data.

Question Three :- Choose the correct answer:

1- The number of floral whorls in the typical flower is

- a) 2 b) 3 c) 4 d) 5

2- The substance is used in self-heating packages.

- a) Ammonium chloride b) Calcium oxide (quicklime)
c) Sodium bicarbonate d) Ammonium nitrate

3- Winds are deflected in the Northern Hemisphere to the of their original direction.

- a) right b) left c) east

What is the importance of each of the following:

1- Crowbar:

2- The white color of the Stevenson screen

Compare between each of the following:

Somatic cells and reproductive (germ) cells. (Type of division and number of resulted cells , chromosomes)

Question Four

Give reason:

1- The difference in heat content between reactants and products in chemical reactions.

2- Red-hot copper is oxidized when a stream of air passed over it.

3- Temperature affects atmospheric pressure.

4- Water spilling from the cup if the cup is moved suddenly

Correct the underlined words:

1- After the second meiotic division, two cells are produced containing half the original number of chromosomes (n). (.....)

Solve the following problems:

Calculate the required force to move a car of mass 700 kg with an acceleration of 7 N/kg

Model Exam  9 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
	Educational Directorate	2 ND Term May 2026	توجيه عام العلوم لغات
	نموذج امتحان الفصل الدراسي الثاني / مايو 2026 / الصف الثاني الاعدادي ((الاجابة فى نفس الورقة / صفحة واحدة))		

Answer the following questions

Question One : - Complete the following statements:

- 1- Oxidization process leads to shortage of.....percentage in the substance. While the reduction process causes an increase inpercentage in the substance.
- 2- If the resulting force is not equal to zero, so the force is
- 3- Winds are deflected to the right in the Hemisphere.

Answer the following:

Imagine trying to break a hard hazelnut shell and you have to choose between two similar crushers, one of which has a longer hand than the other.

Determine:

What kind of levers is the nutcracker? And how does it work?

Which two crushers will you use?

Where do you put the hazelnut for the arms?

What is meant by:

- 1- Ignition point
- 2- Weather forecasting

Question Two : - What happens when:

- 1- Passing a stream of air over red - hot copper powder.
.....
- 2- The effort arm is longer than the load arm in the levers.
.....
- 3- If A pollen grain falls on the stigma of a flower of a different species?
.....

Write the scientific term:

- 1- The name given to the calcium hydroxide produced by the reaction of quicklime with water.
(.....)
- 2- A short stem whose leaves are modified to carry out reproduction in the plant.
(.....)
- 3- Seasonal winds in Egypt carrying sand and dust and affecting health.
(.....)

Question Three :- Choose the correct answer:

1- Winds are deflected in the Southern Hemisphere the clockwise direction

- a) with b) against c) parallel to

2- Aircraft navigation mainly depends on knowing

- a) weather maps b) ocean depths c) forests

3- In exothermic reactions, the final temperature (T_2) is the initial temperature (T_1)

- a) Lower than b) higher than c) equal to d) half

What is the importance of each of the following:

1- Oxyacetylene flame

2- Weather maps

Compare between each of the following:

Oxidation and reduction.

Question Four :- Give reason:

1- The process of breaking bonds is endothermic, while the formation of bonds is exothermic.

2- Water is not used to extinguish petroleum fires.

3- Atmospheric pressure decreases with increasing altitude above sea level.

4- The equality of the number of chromosomes in the somatic cells of different living organisms does not mean genetic similarity.

Correct the underlined words:

1- Gynoecium produces pollen grains. (.....)

Solve the following problems:

A lever affected by a force of 30 N, its length 20 cm, and a load of 20 N and a load arm length of 10 cm.

a- Is this lever balanced? and why?

b- If the lever is unbalanced, what is the length of the load arm that achieves balance?

Model Exam	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
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((الاجابة فى نفس الورقة / صفحة واحدة))

Answer the following questions

Question One

Choose the correct answer:

1- If a resultant force of 20 N acts on a body of mass 5 kg, its acceleration is

- a) 4 m/s^2 b) 10 m/s^2 c) 100 m/s^2 d) 0.25 m/s^2

2- A human somatic cell contains

- a) 23 chromosomes b) 46 chromosomes
c) 48 chromosomes d) 56 chromosomes

Give reasons for the following:

1- The cooling cycle of a refrigerator raises the temperature of the surrounding environment.

2- It becomes harder to stop a moving object as its mass increases.

3- Meiosis occurs in reproductive cells.

4- Sea breeze forms during the daytime.

Question Two

Complete the following statements:

1- A reaction occurs when hydrogen gas is passed over copper oxide with heating.

2- The Stevenson screen is painted white to reflect

What happens if:

1- An ordinary cup is used instead of an insulating polystyrene cup in a heat of dissolution experiment?

2- The resultant force acting on a body increases while its mass remains constant?

3- A plant depends on self-pollination only?

4- The Coriolis effect disappears?

Question Three

Write the scientific term for each statement:

1- The rate of change of velocity with time. (.....)

2- The male reproductive organ of the flower. (.....)

Compare between:

1- Instant cold compresses and instant hot compresses.

2- Newton's first law and Newton's second law.

3- Self-pollination and cross-pollination.

4- Absolute humidity and relative humidity.

Question Four

Correct the underlined words:

1- Gametes contain the complete number of chromosomes ($2n$). (.....)

2- Insect-pollinated flowers have light, dry pollen grains. (.....)

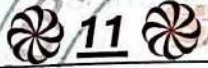
State the importance of each of the following:

1- Studying the heat of dissolution of different substances.*

2- Studying different types of levers.

3- Flowers in plants.

4- Weather forecasts for farmers.*

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Answer the following questions

Question One : - Complete the following statements:

- 1- A low-pressure area is represented by the symbol and the color
- 2- The crowbar is a.....class lever, while the manual broom is a class lever
- 3- Examples of unisexual flowers include the plant and the plant

Answer the following:

Imagine trying to lift a huge rock using a metal pole as a lever and a small stone as a fulcrum. (Explain your answer with a drawing).

- a- What type of levers will be used?
- b- Will you choose a long or short column to get the job done?
- c- Where will you put the small stone in relation to the huge rock?

What is meant by:

- 1- Spontaneous combustion:
- 2- The Weather Kiosk (Stevenson's Kiosk).

Question Two : - What happens when:

- 1- Passing a stream of hydrogen gas over black copper oxide with heating.
- 2- If The gynoecium is removed from a typical flower before it blooms?
- 3- To Ovules after fertilization.

Write the scientific term:

- 1- The weight of a column of air with a cross-sectional area of 1 m^2 and a height equal to the height of the atmosphere. (.....)
- 2- A cell formed by the fusion of the egg nucleus, containing (2N) chromosomes. (.....)
- 3- An isolated system in which the total energy remains constant (as defined by Helmholtz). (.....)

Question Three : - Choose the correct answer:

- 1- In an endothermic reaction, the value of the change in heat content is*
a) Negative b) positive c) zero d) variable
- 2- When a magnesium strip reacts with dilute hydrochloric acid, heat is transferred from.....
a) The surrounding medium to the system
b) The system to the surrounding medium
c) The products to the reactants
d) The beaker to the thermometer only
- 3- Wind deflection is greatest at the
a) equator b) poles c) tropics

What is the importance of each of the following:

- 1- Crossing over phenomenon.
.....
.....
- 2- Knowing the direction of the Coriolis effect
.....
.....

Compare between each of the following:

Oxidizing agent and reducing agent.
.....
.....
=====

Question Four : - Give reason:

- 1- The reaction of magnesium with hydrochloric acid is an exothermic reaction.
.....
.....
- 2- Potassium permanganate powder reacts when drops of glycerin are added to it.
.....
.....
3. The occurrence of land breeze.
.....
.....
- 4- Temperature decreases as we rise above sea level.
.....
.....

Correct the underlined words:

- 1- Calyx attracts insects to make pollination process.

Solve the following problems:

- 8- Using the following table, find the value of x, y and state the law of levers.

Effort (Newton)	Effort Arm (cm)	Load (Newton)	Load Arm (cm)
X	5	1	10
4	5	2	Y

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Answer the following questions

Question One

Complete the following statements:

- 1- Air currents in a low-pressure area are leading to cloud formation.
- 2- The floral whorl that protects the internal parts of the flower before its blooming is the
- 3- The oxyacetylene flame is produced by the complete combustion of.....gas in presence of.....gas and reaches a temperature of Celsius degrees.

Answer the following:

A person pushes the wall, why doesn't the wall move despite the pushing ?

What is meant by:

- 1- Ignition point
- 2- The reducing agent

Question Two : - What happens when:

- 1- Evacuating air from food preservation bags.
- 2- If Androeceum is removed from a typical flower (related to type of pollination)
- 3- To Ovary after fertilization.

Write the scientific term:

- 1- The lowest temperature in one day. (.....)
- 2- The basic unit of structure and function in living organisms. (.....)
- 3- A gas used in radiosonde balloons because of its light weight. (.....)

Question Three : - Choose the correct answer:

- 1- A high atmospheric pressure area is represented by the symbol
a) L b) H c) P

2- Which of the following reactions is an example of an endothermic reaction?

- a) Magnesium reacting with hydrochloric acid
- b) Calcium oxide reacting with water
- c) Barium hydroxide reacting with ammonium chloride
- d) Thermite reaction

3- A weather forecast for ... is more accurate than a one-week forecast.

- a) two days
- b) a month
- d) a year

What is the importance of each of the following:

1- Mitosis division in humans.

2- The difference in atmospheric pressure between two regions.

Compare between each of the following:

Instant cold compresses and instant hot compresses based on the following table:

Point of comparison	
a) Dissolving substance	
b) Benefits	

Question Four : - Give reason:

1- The mass of the dissolved substance is directly proportional to the change in temperature resulting from the melting process.

2- An oxyacetylene flame is used for cutting or welding metals.

3- Khamaseen winds have harmful health effects.

4- Simple machines are very important in our lives.

Correct the underlined words:

1- Sepals in many flowers are brightly colored and have a Fragrant scent.
(.....)

Solve the following problems:

If the initial temperature $T_i = 20^\circ\text{C}$ and the final temperature $T_2 = 15^\circ\text{C}$, calculate: - The change in temperature ΔT and determine the type of dissolution.

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Answer the following questions

Question One

Complete the following statements:

- 1- Air moves from areas of pressure to areas of pressure.
- 2- It is recommended to wear a when driving a car.
- 3- Fires can be extinguished by or or

Answer the following:

A car moving at a constant speed on a straight road Which law explains this.

What is meant by:

- 1- Oxidization
- 2- Meteorological buoys.

Question Two

What happens when:

- 1- Elastic collision between two objects
- 2- The ovary contains many ovules (after fertilization)
- 3- The Earth stopped rotating?

Write the scientific term:

- 1- The highest temperature in one day. (.....)
- 2- A vital process in which a living organism produces new individuals of the same species, ensuring its continuity and protection from extinction. (.....)
- 3- A white wooden box with slanted openings that protects temperature-measuring instruments. (.....)

Question Three

Choose the correct answer:

- 1- On weather maps, the lines that connect points of equal pressure are called

- a) isobars b) lines of longitude c) elevations
- 2- The German scientist who proved that energy cannot be created or destroyed is
- a) Einstein b) Newton c) Hermann von Helmholtz d) Dalton
- 3- The substance responsible for the "refreshing sensation" (coolness) when eating fizzy sweets is
- a) Citric acid only b) Glucose c) Iron oxide
- d) A mixture of sodium bicarbonate and citric acid

What is the importance of each of the following:

1- Corolla.

2- Spark plugs.

Compare between each of the following:

Land breeze and sea breeze.

Question Four

Give reason:

- 1- Instant Hot packs (using magnesium sulfate) are used to relieve pain associated with muscle strain
- 2- The combustion of carbohydrates produces CO_2 , H_2O gas.
- 3- The accuracy of weather forecasts decreases as the time period increases.
- 4- The effort and load can be equal to the first type of levers only.

Correct the underlined words:

- 1- Anthers hang outside the flowers of some plants that are pollinated by insects. (.....)

Solve the following problems:

A type of first class lever had a force of 80 N and a effort arm of 10 cm. It affected a load of 200 N. Calculate the length of the load arm? Does the lever save effort or not?

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Answer the following questions

Question One

Complete the following statements:

- 1- The most common type of levers are.....class levers.
- 2- Examples of fossil fuels include.....and.....and.....
- 3- At the equator, wind paths are

Answer the following:

When jumping out of the boat, the boat moves backwards Which law makes this clear.

What is meant by:

- 1- Reduction
- 2- High-pressure system.

Question Two

What happens when:

- 1- The collision of two objects is an inelastic collision
- 2- Crossing over phenomenon does not occur.
- 3- Meteorological satellites disappeared?

Write the scientific term:

1. The prevailing state of the atmosphere at a specific place over a long period of time. (.....)
- 2- The female reproductive organ in the flower. (.....)
3. The symbol used to represent "snowfall." (.....)

Question Three

Choose the correct answer:

- 1- One of the safety measures during Khamaseen winds is
a) wearing a mask b) traveling by sea c) irrigating crops

2-The process of breaking the bonds between atoms in reacting substances is.....

- a) Exothermic
- b) endothermic
- c) Not accompanied by heat change
- d) produces electrical energy

3- A low-pressure area (L) forms at the

- a) poles
- b) equator
- c) cold regions

What is the importance of each of the following:

1- Androecium.

2- Fire extinguishers

Compare between each of the following:

Daily average temperature and daily temperature range.

Question Four

Give reason:

1- Special precautions must be taken when diluting concentrated acids by adding the acid to water, not the other way around.

2- Spark plugs are used in car engines.

3- The stationary body remains stationary if it is not affected by force

4- Third class levers do not always save effort.

Correct the underlined words:

Pollen grains in wind-pollinated plants are sticky or rough. (.....)

Solve the following problems:

A type of first class lever had a force of 120 N and a effort arm of 15 cm. It affected a load of 300 N. Calculate the length of the load arm? Does the lever save effort or not?

Model Exam  15 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
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Answer the following questions

Question One

Choose the correct answer:

- When balanced forces act on a stationary body, it
 a) moves with uniform acceleration b) remains at rest
 c- changes its direction of motion d) gradually stops
- The cells that contain the complete number of chromosomes (2n) are
 a) gametes b) sperm cells c) somatic cells d) ova

Give reasons for the following:

- The reaction between magnesium and hydrochloric acid is described as exothermic,

- Passengers are thrown forward when a bus stops suddenly.

- Individuals produced by sexual reproduction differ genetically from their parents.

- Weather forecasts are probabilistic expectations, not confirmed facts.

Question Two

Complete the following statements:

- The process of losing oxygen or gaining hydrogen is called
- The difference between the maximum and minimum daily temperature is called

What happens if:

- Water is added to concentrated acid instead of adding acid to water

- The mass of a body increases while the net force acting on it remains constant

- Pollen grains of maize fall on the stigmas of tomato flowers

4- Decreases the temperature of air that saturated with water vapor.

Question Three

Write the scientific term for each statement:

1- The property of a body to maintain its state of rest or motion.

(.....)

2- The cell formed from the fusion of the male and female gametes.

(.....)

Compare between:

1- Exothermic dissolution and endothermic dissolution.

2- First-class levers and second-class levers.

3- Mitosis and meiosis.

4- High-pressure system and low-pressure system.

Question Four

Correct the underlined words:

1- Endothermic reactions release heat energy to the surrounding environment.

(.....)

2- Wind-pollinated flowers are usually large and brightly colored.

(.....)

State the importance of each of the following:

1- Preserving food by removing air.

2- Seat belts in cars.

3- Cross-pollination in plants.

4- Weather maps.

Model Exam  16 	Dakahlia Governorate	Science Prep. Two	Time : 2 Hours
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Answer the following questions

Question One : - Complete the following statements:

- 1- The deflection of winds caused by Earth's rotation is called the effect.
- 2- Levers make tasks easier by..... , and
- 3- Butane gas consists of two gasesand.....

Answer the following:

Why do the passengers of the car rush forward when it comes to a sudden stop?

What is meant by:

- 1- The oxidizing agent
- 2- Khamaseen winds.

Question Two : - What happens when:

- 1- All the forces acting on an object moving at a constant speed stopped.
- 2- Atmospheric pressure became equal between two cities?
- 3- If Somatic cells in the human do not divided mitotically.

Write the scientific term:

- 1- The state of the atmosphere at a specific place over a short period of time. (.....)
- 2- The transfer of pollen grains from the anthers of a flower to the stigmas of same flower or a flower on same plant of the same species.
- 3- The symbol used on maps to represent "thunder and lightning" (.....)

Question Three : - Choose the correct answer:

- 1- A low-pressure area is represented by the color
a) blue b) red c) yellow

2- In the energy diagram of an exothermic reaction, the energy level of the products isthe energy level of the reactants.

- a) Higher than b) lower than c) equal to d) parallel to

3- In the lemon battery experiment, energy is converted from energy to electrical energy.

- a) Thermal b) kinetic c) chemical d) light

What is the importance of each of the following:

1- Gynoecium.

2- Evacuating air from preservation bags when preserving food in them.

Compare between each of the following:

Weather and Climate.

Question Four

Give reason:

1- We feel the warmth of our hands when the laundry powder dissolves in water.

2- The color of the Bunsen flame used in laboratories varies.

3- Temperature is considered the most important climatic element.

4- Sexual reproduction leads to variation in the inherited characteristics of the resulting individuals.

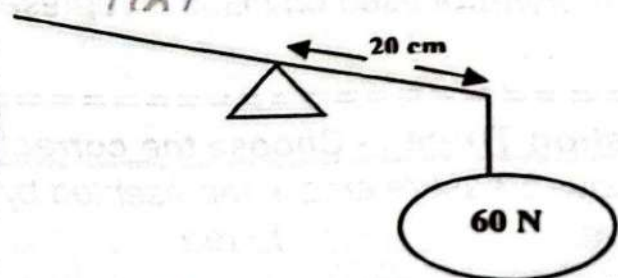
Correct the underlined words:

1- Wind-pollinated plants produce pollen grains in few numbers. (*.....)

Solve the following problems:

In the corresponding figure:

On what dimension of the fulcrum does a load of 30 N is hanged, to balance the lever?



كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

